

Technical Publications

Direction 2173229-100 Revision 5

AMX-4+ Schematics (Model 2169360, 2236420 & 2275938 Series)

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Operating Documentation

WARNING

- THIS SERVICE MANUAL IS AVAILABLE IN ENGLISH ONLY.
- IF A CUSTOMER'S SERVICE PROVIDER REQUIRES A LANGUAGE OTHER THAN ENGLISH, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.
- DO NOT ATTEMPT TO SERVICE THE EQUIPMENT UNLESS THIS SERVICE MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.
- FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.

AVERTISSEMENT

- CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENTION SUR LES ÉQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ÉTÉ CONSULTÉ ET COMPRIS.
- LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÎNER CHEZ LE TECHNICIEN, L'OPÉRATEUR OU LE PATIENT DES BLESSURES DUES À DES DANGERS ÉLECTRIQUES, MÉCANIQUES OU AUTRES.

WARNUNG

- DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.
- FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
- VERSUCHEN SIE NICHT, DAS GERÄT ZU REPARIEREN, BEVOR DIESES KUNDENDIENST-HANDBUCH NICHT ZU RATE GEZOGEN UND VERSTANDEN WURDE.
- WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE SCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

AVISO

- ESTE MANUAL DE SERVICIO SÓLO EXISTE EN INGLÉS.
- SI ALGÚN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCIÓN.
- NO SE DEBERÁ DAR SERVICIO TÉCNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.
- LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.

ATENÇÃO

- ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.
- SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEMS, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.
- NÃO TENTE REPARAR O EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO ESTE MANUAL DE ASSISTÊNCIA TÉCNICA.
- O NÃO CUMPRIMENTO DESTE AVISO PODE POR EM PERIGO A SEGURANÇA DO TÉCNICO, OPERADOR OU PACIENTE DEVIDO A' CHOQUES ELÉTRICOS, MECÂNICOS OU OUTROS.

AVVERTENZA

- IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLTANTO IN INGLESE.
- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE È TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.
- SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO.
- NON TENERE CONTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

警告

- ・このサービスマニュアルには英語版しかありません。
- ・GEMS以外でサービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。
- ・このサービスマニュアルを熟読し理解せずに、装置のサービスを行わ ないで下さい。
- ・この警告に従わない場合、サービスを担当される方、操作員あるいは 患者さんが、感電や機械的又はその他の危険により負傷する可能性が あります。

注意:

- 本维修手册仅存有英文本。
- 非 GEMS 公司的维修员要求非英文本的维修手册时, 客户需自行负责翻译。
- 未详细阅读和完全了解本手册之前,不得进行维修。
- 忽略本注意事项会对维修员,操作员或病人造成触电,机械伤害或其他伤害。

Direction 2173229-100

Revision 5

AMX-4+ Schematics (Model 2169360, 2236420 & 2275938 Series)

IMPORTANT!... X-RAY PROTECTION



X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Medical Systems Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical

design compel the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that everyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protec-

tion, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Medical Systems Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective material and devices are available. It is urged that such materials or devices be used.

CAUTION: United States Federal law restricts this device to use by or on the order of a physician.

If you have any comments, suggestions or corrections to the information in this document, please write them down, include the document title and document number, and send them to:

GENERAL ELECTRIC COMPANY MEDICAL SYSTEMS

MANAGER – INFORMATION INTEGRATION, AMERICAS W-622 P.O. BOX 414 MILWAUKEE. WI 53201-0414

CERTIFIED ELECTRICAL CONTRACTOR STATEMENT



All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing shall be

performed by qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the

requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation "damage in shipment" written on all copies of the freight or express bill before delivery is accepted or "signed for" by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately

upon discovery, or in any event, within **14** days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this **14** day period.

Call Traffic and Transportation, Milwaukee, WI (414) 827-3449 / 8*285-3449 **immediately** after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section "S" of the Policy & Procedure Bulletins.

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REVISION HISTORY

REV	DATE	REASON FOR CHANGE
0	Dec 13. 1996	Initial release.
1	Mar. 7 1997	Cnanges to Section 2.
2	June 24 1997	Added Section 16 (Relay Chassis Assembly); added 2173060SCH to Section 14; corrected 2115090sch in Section 2.
3	Aug. 15, 1997	Updated schematic 2115090sch. High Impact Inspection.
4	Apr. 12, 1999	Updated schematics 2115090sch, 46-232786-s.
5	Nov. 8, 2000	Added 2275938 series. Updated schematics.

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6-1 thru 6-6	5				
7-1 and 7-4	5				
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9-1 thru 9-6	5				
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12-1 thru 12-6	5				
13-1 thru 13-4	5				
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AMX-4+ SCHEMATICS

SECTION 1 INTRODUCTION

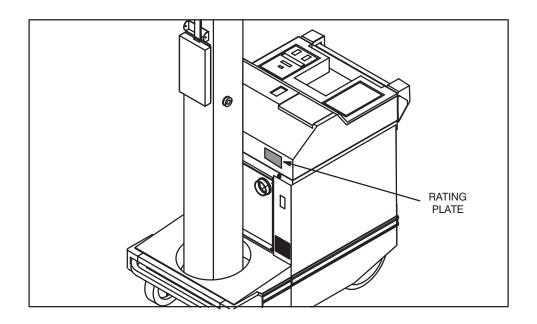
1-1 Indentification

See Illustration 1. The AMX-4+ is identified by Model Number on the rating plate located on the top cover. Model part and catalog numbers are identified in Table 1. This direction contains schematic diagrams for these units.

TABLE 1
AMX-4+ MODELS

DESCRIPTION	PART NUMBER	CATALOG NUMBER	PART NUMBER	CATALOG NUMBER
DOMESTIC	2169360-7	A0659F	2236420-7 & 2275938-7	A0659JF
DOMESTIC, AEC	2169360-8	A0659FA	2236420-8 & 2275938-8	A0659JG
DOMESTIC, TECH SWITCH	2169360-9	A0659FC	2236420-9 & 2275938-9	A0659JH
DOMESTIC, AEC, TECH SWITCH	2169360-10	A0659FB	2236420-10 & 2275938-10	A0659JJ
IEC, EMC	2169360	A0659A	2236420 & 2275938	A0659J
IEC, EMC, AEC	2169360-2	A0659AA	2236420-2 & 2275938-2	A0659JA
IEC, EMC, TECH SWITCH	2169360-3	A0659AB	2236420-3 & 2275938-3	A0659JB
IEC, EMC, AEC, TECH SWITCH	2169360-4	A0659AC	2236420-4 & 2275938-4	A0659JC
JAPAN	2169360-5	A0659C	2236420-5 & 2275938-5	A0659JD
JAPAN SHORT COLUMN	2169360-6	A0659D	2236420-6 & 2275938-6	A0659JE

ILLUSTRATION 1
AMX-4+ IDENTIFICATION



1-2 General

The AMX-4+ contains operating safeguards providing maximum safety. Before servicing, be certain proper operating procedures are being used. Refer to Direction 2166913-100 *AMX-4+ Operation* or to Direction 2166911-100 *AMX-4+ International Operation* for proper operating procedures.

Satisfactory equipment performance requires the use of service personnel specially trained on x-ray apparatus. The GE Medical Systems, is responsible for the effects on safety, reliability, and performance only if the following conditions are met:

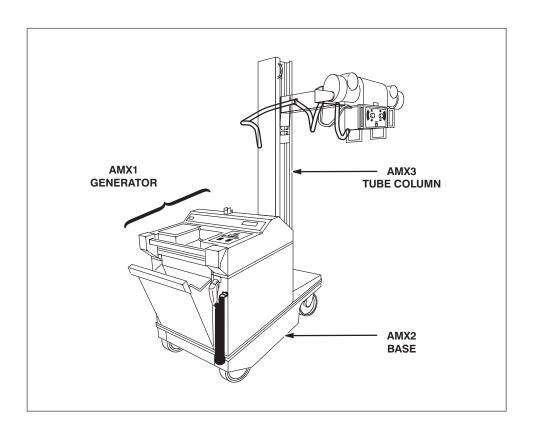
- The electrical wiring of the relevant rooms complies with all national and local codes.
- All assembly operations, extensions, re—adjustments, modifications, or repairs are carried out by GE Medical Systems, authorized service representatives.
- The equipment is used in accordance with the instructions for use. Refer to Direction 2166913–100 *AMX*–4+ *Operation* or to Direction 2166911–100 *AMX*–4+ *International Operation* for proper operating procedures.

Only trained and qualified personnel should be permitted access to the internal parts of this equipment.



1-3 Assembly Designators

ILLUSTRATION 2 ASSEMBLY DESIGNATORS



Schematics and Terminal Strips are arranged in Assembly Designator order. As-sembly Designators are codes which simplify component identification. The code is a convenient shorthand which defines each assembly or component. Assembly Designators are derived from the location of components and assemblies within a major assembly. Refer to Illustration 2 and the following list for AMX-4+ codes:

• AMX1 Generator

AMX1 A1 Top Cover AMX1 A2 Top Deck (under cover) AMX1 A3 Left Side AMX1 A4 Right Side AMX1 A5 Rear AMX1 A6 High Voltage Transformer

• AMX2 Base

AMX2 A1 Rear AMX2 A2 Front AMX2 A3 Battery

AMX3 Column

AMX3 A1 Column AMX3 A2 Tube Arm AMX3 A3 Tube AMX3 A4 Collimator

SECTION 2

REV 5

AMX-4 OVERALL WIRING

MODEL 2169360 SERIES:

2169360	2169360-6	
2169360-2	2169360-7	
2169360-3	2169360-8	
2169360-4	2169360-9	
2169360-5	2169360-10	

MODEL 2236420 SERIES:

2236420	2236420-6
2236420-2	2236420-7
2236420-3	2236420-8
2236420-4	2236420-9
2236420-5	2236420-1

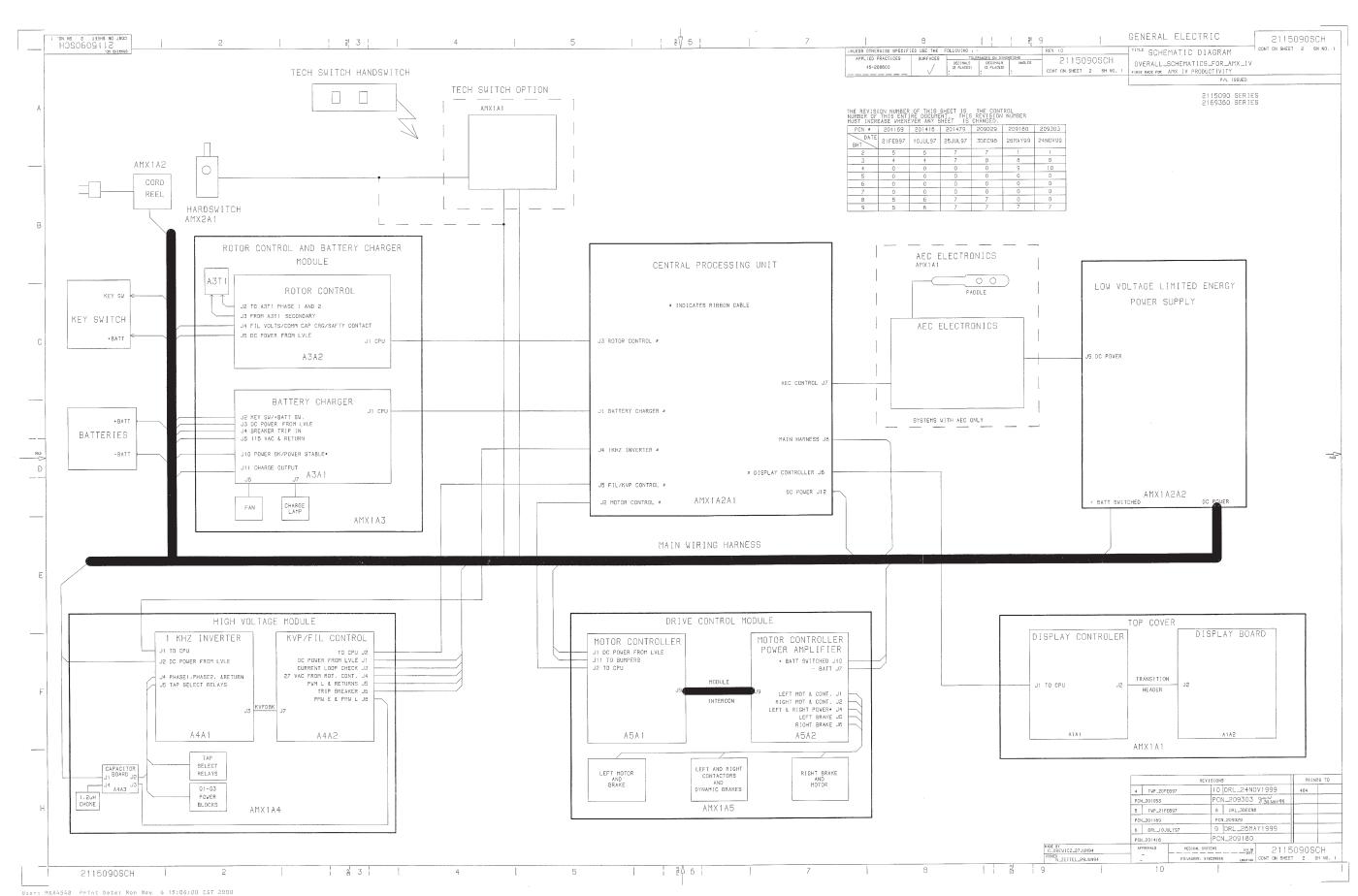
MODEL 2275938 SERIES:

2275938	2275938-6
2275938-2	2275938-7
2275938 - 3	2275938-8
2275938-4	2275938-9
2275938-5	2275938-10

NO BOARD DRAWING

REV 5

DIRECTION 2173229-100

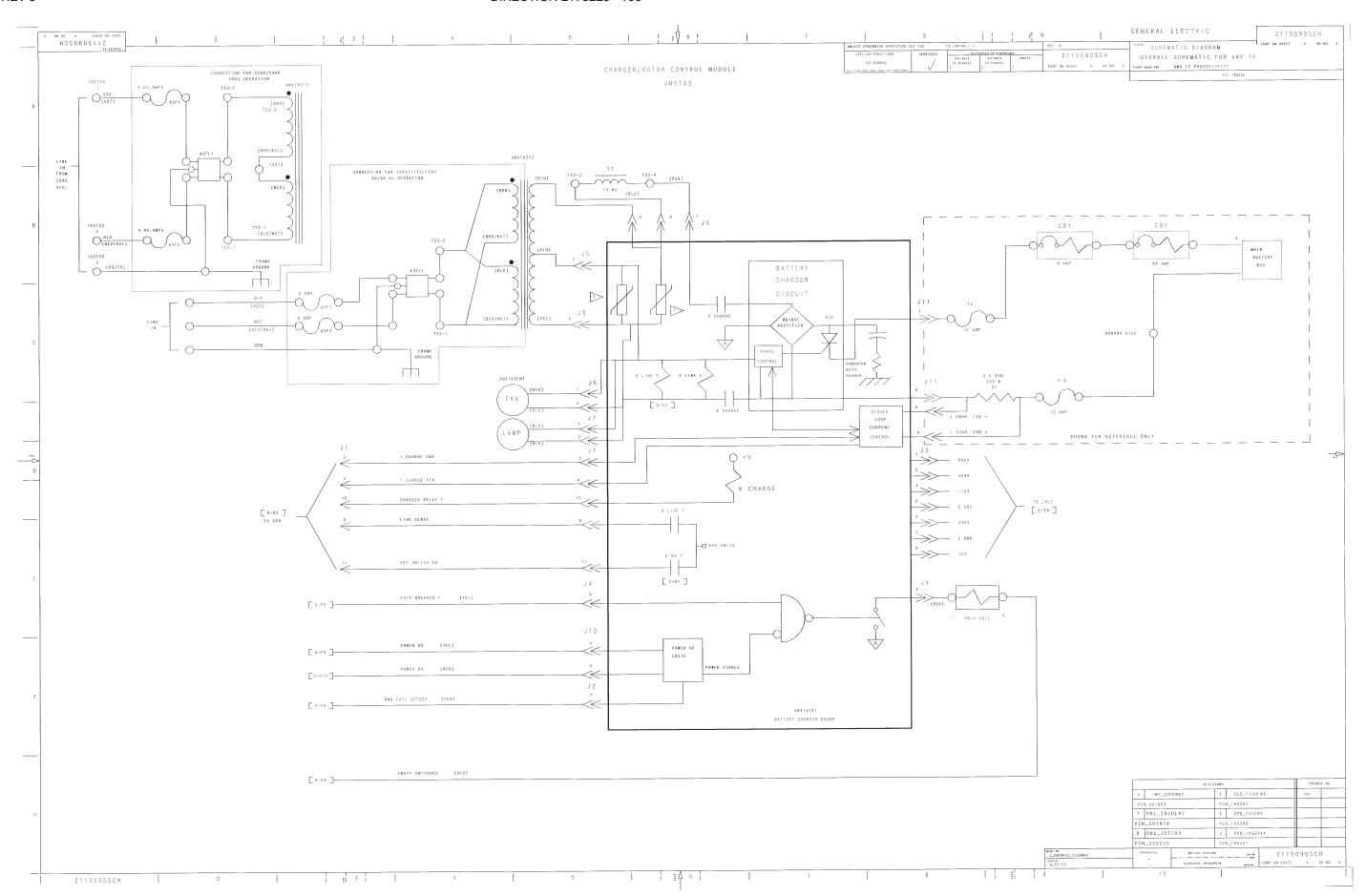


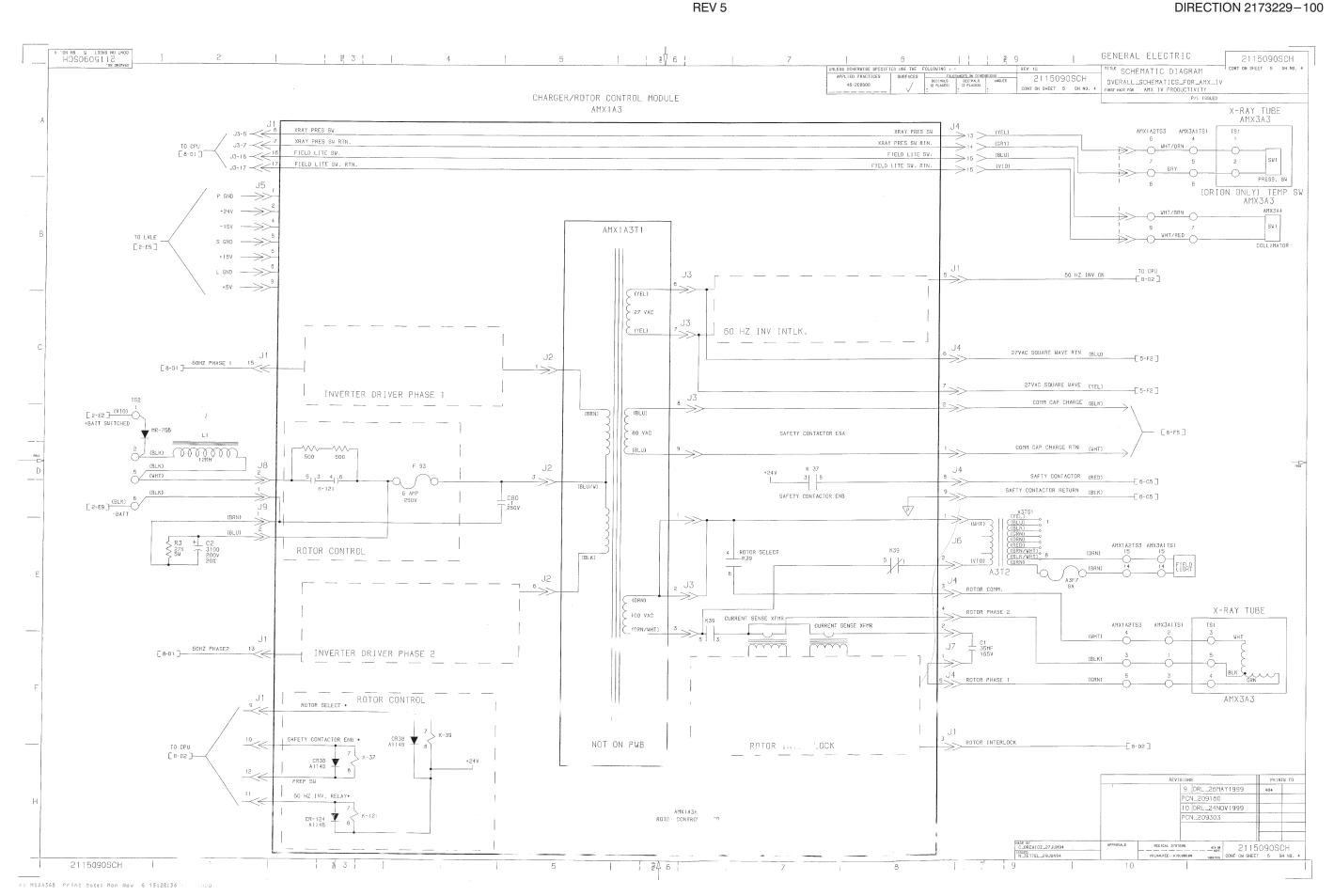
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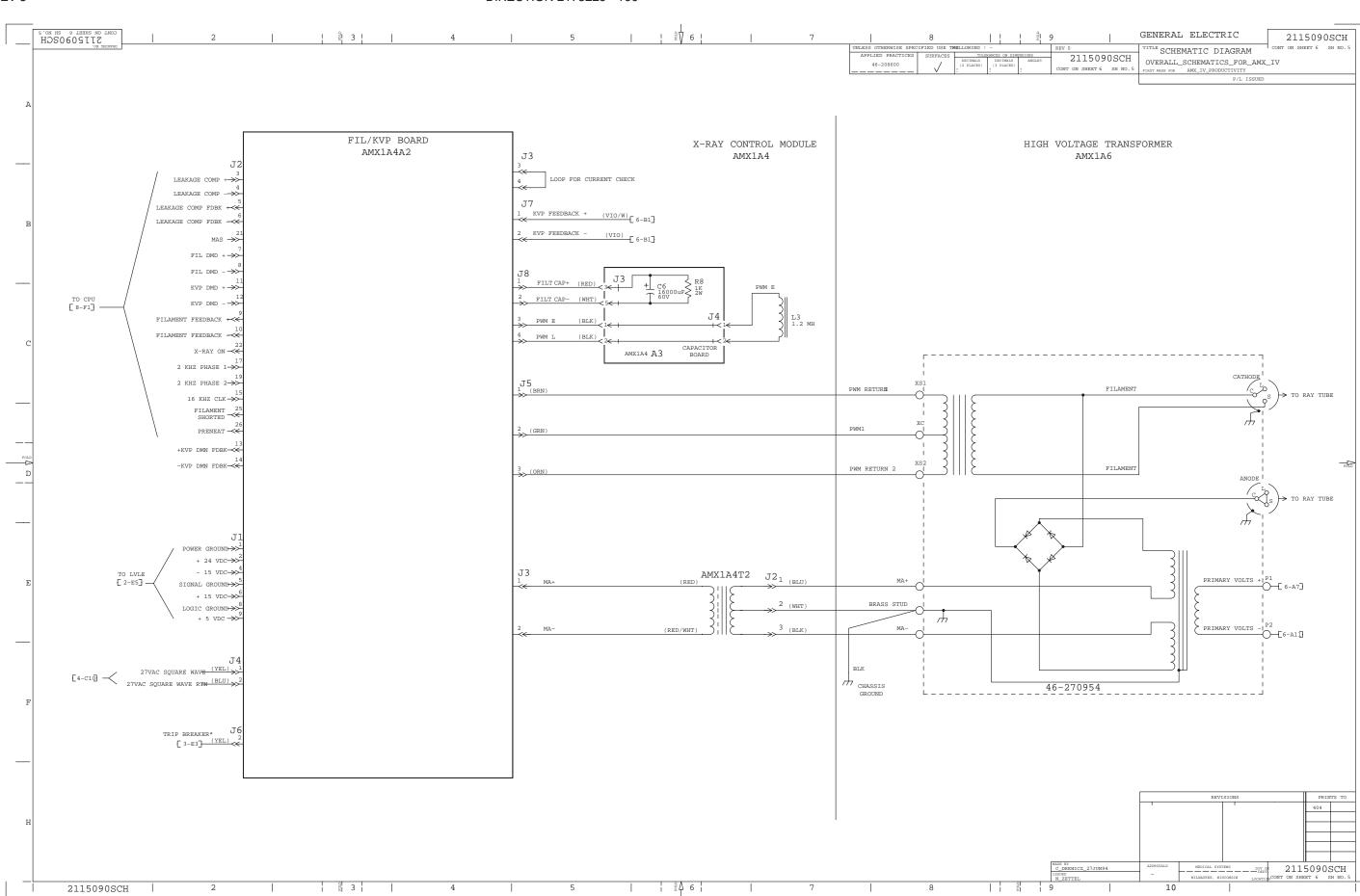
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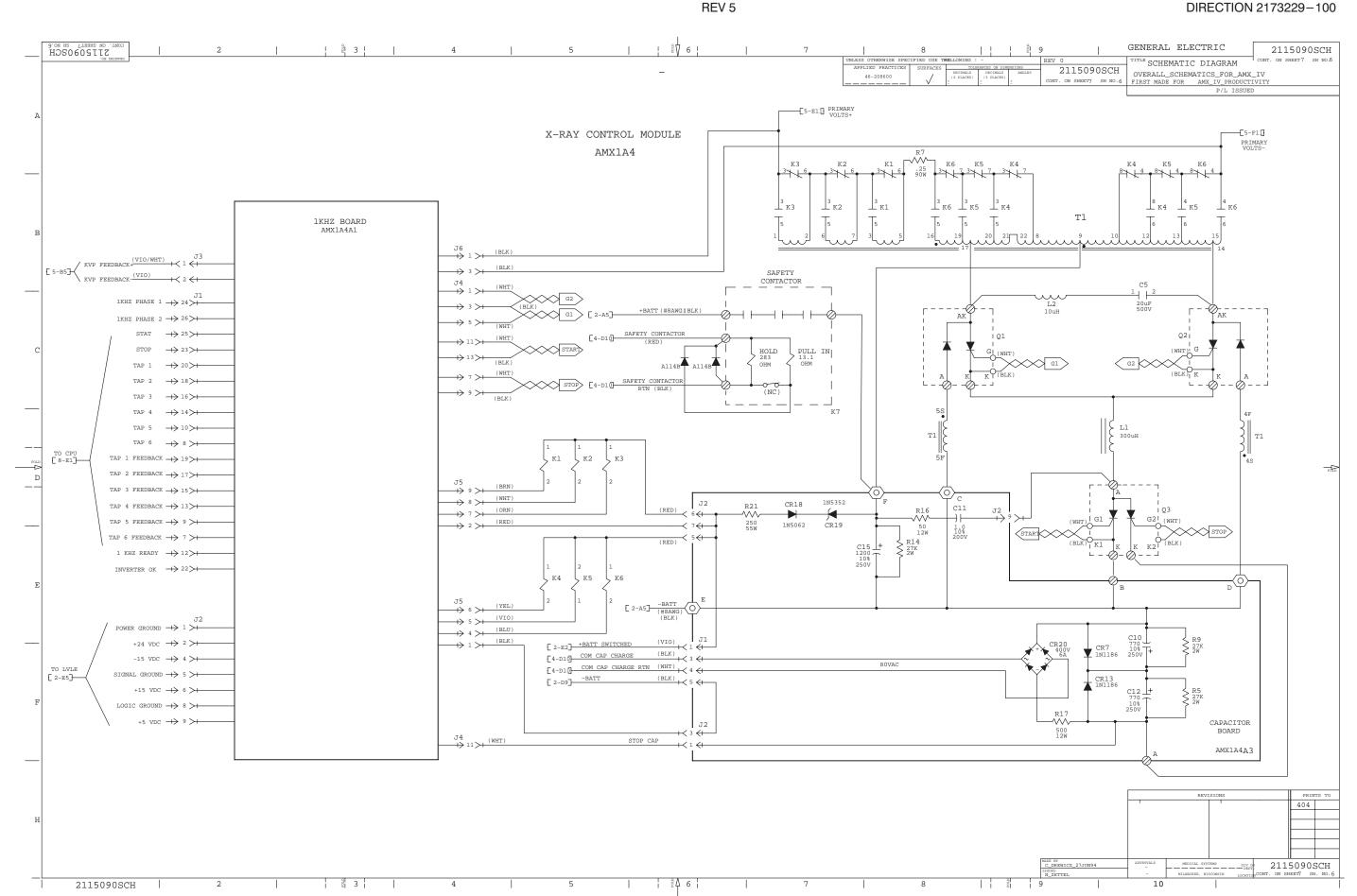
GENERAL ELECTRIC 2 1 1 5 0 9 0 S C H SCHEMATIC DIAGRAM NOTE: THIS SHEET FOR AMX4 MODELS 2115090 THRU 2115090-21 ONLY. 2115090SCH OVERALL_SCHEMATICS_FOR_AMX_IV SEE SHEET 9 FOR AMX4-PLUS SCHEMATIC MODELS 2169360 THRU 2169360-10. POWER DISTRIBUTION COLUMN GROUND ARN GROUND TO X-RAY

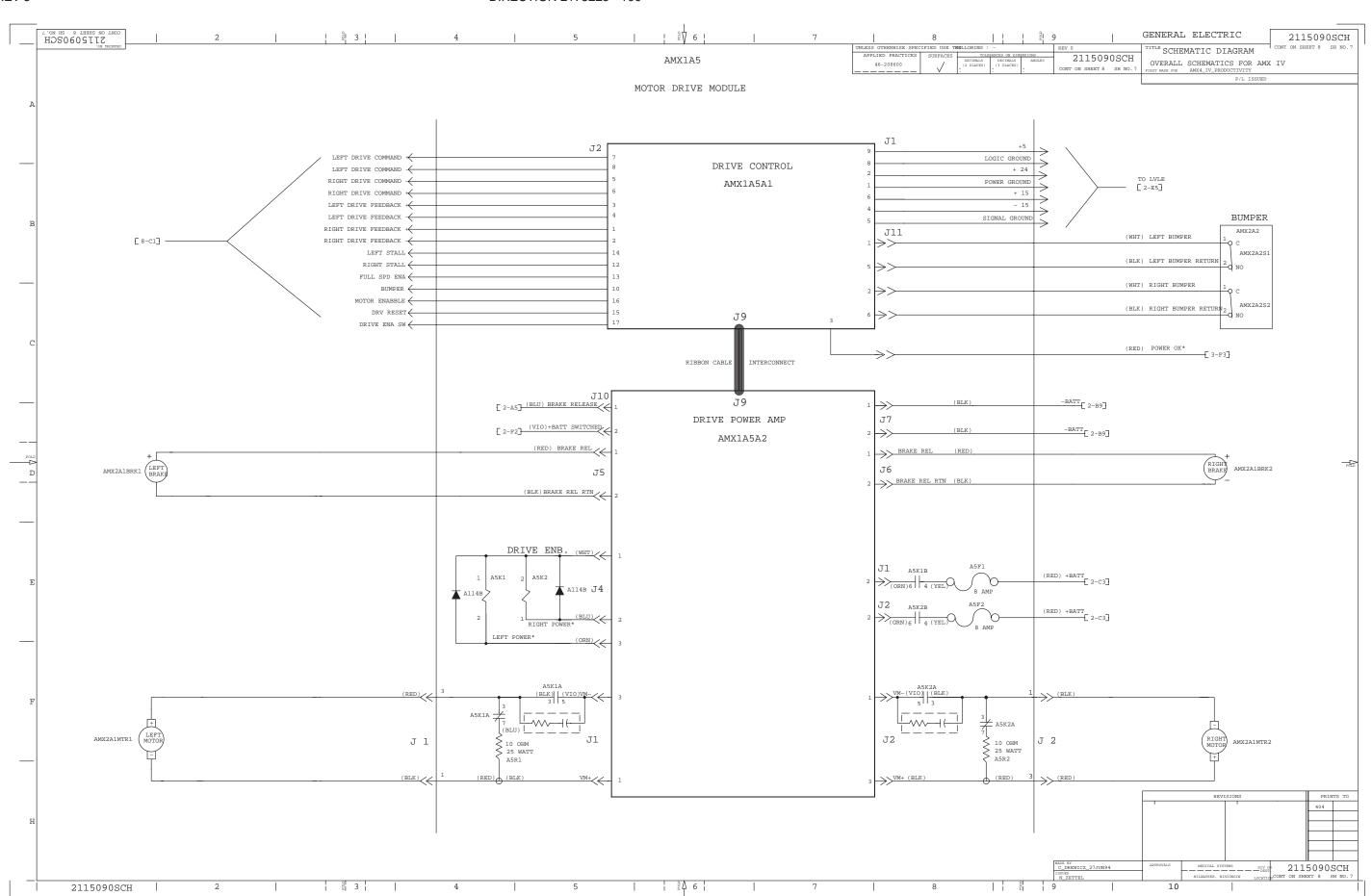
CONTROL MODULE -BATT (BLK) (#8AWG) 1A5F2 (RED) 7-E9 BATTERY AMXIASAI BOARD TUBE PARKED LATCH [8-F8] _____ 8-F5] 8-E4] GND STUD \Box (VID) 1A5A2J10-2 7-D4 +BATT SWITCHED DEE DETAIL OP FOR TEST HARNESS CONNECTIONS. NICE SYSTEMS NO. 2115090SCH B 3 2 1 1 5 0 9 0 S C H

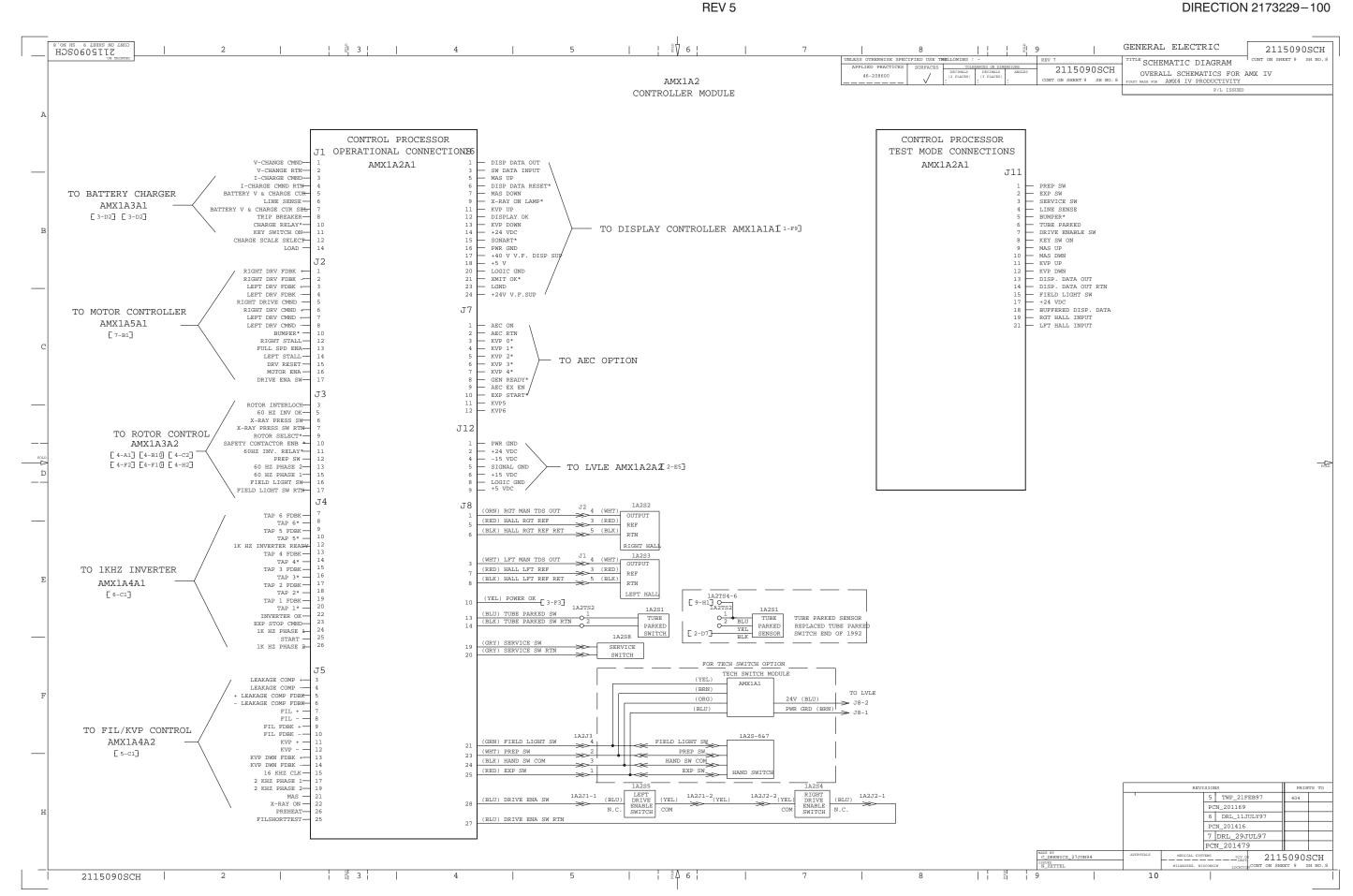


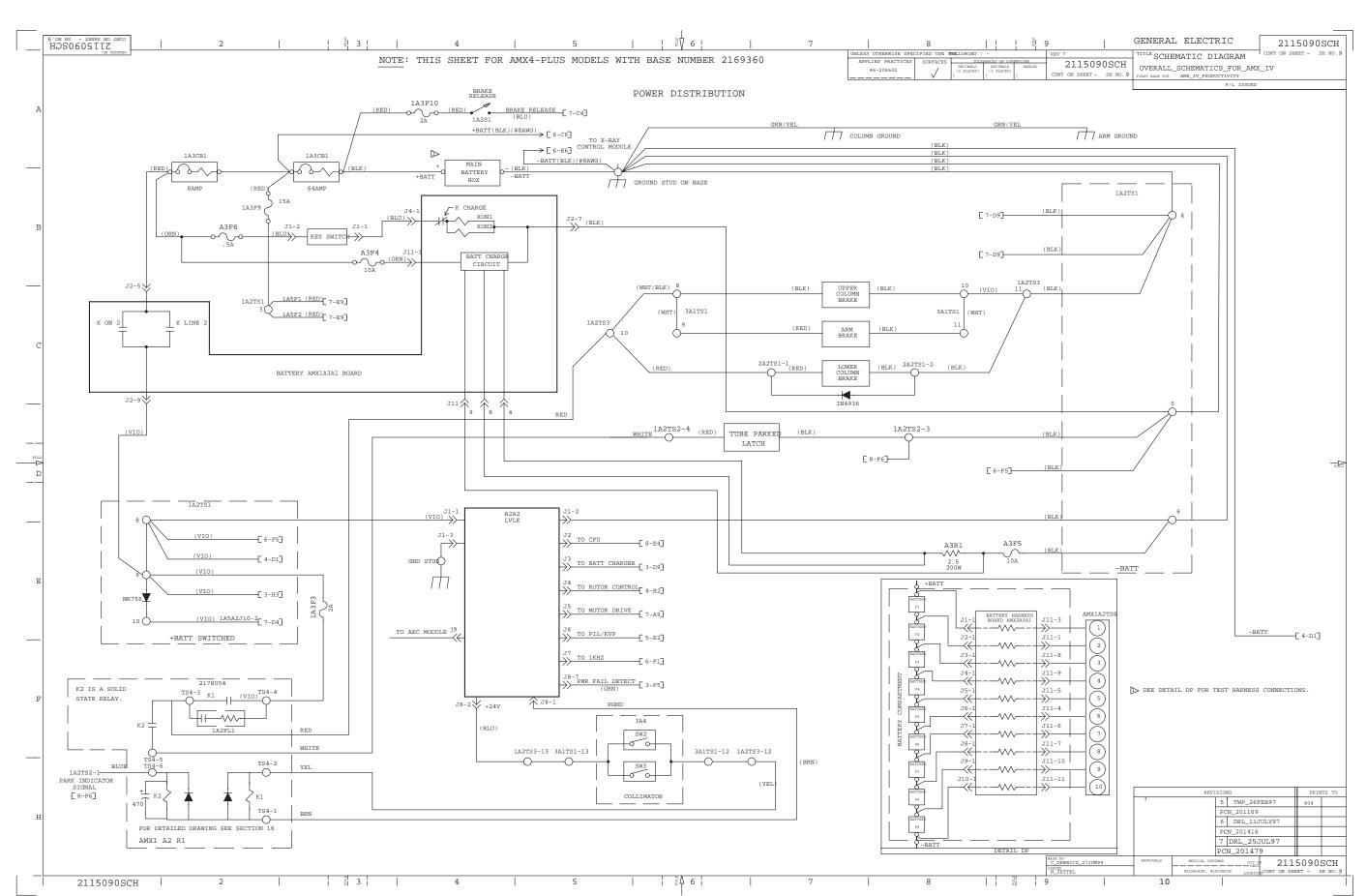










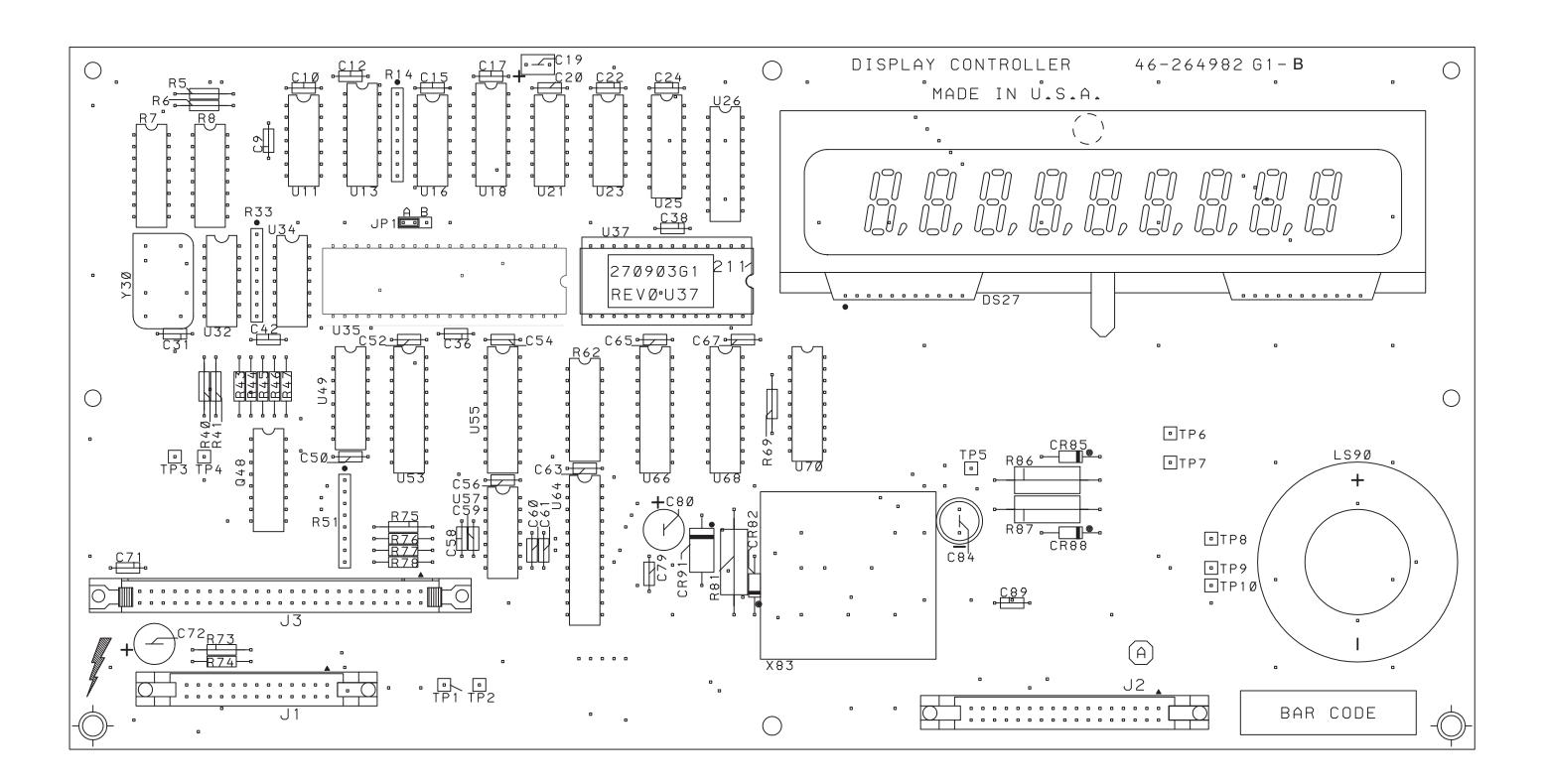


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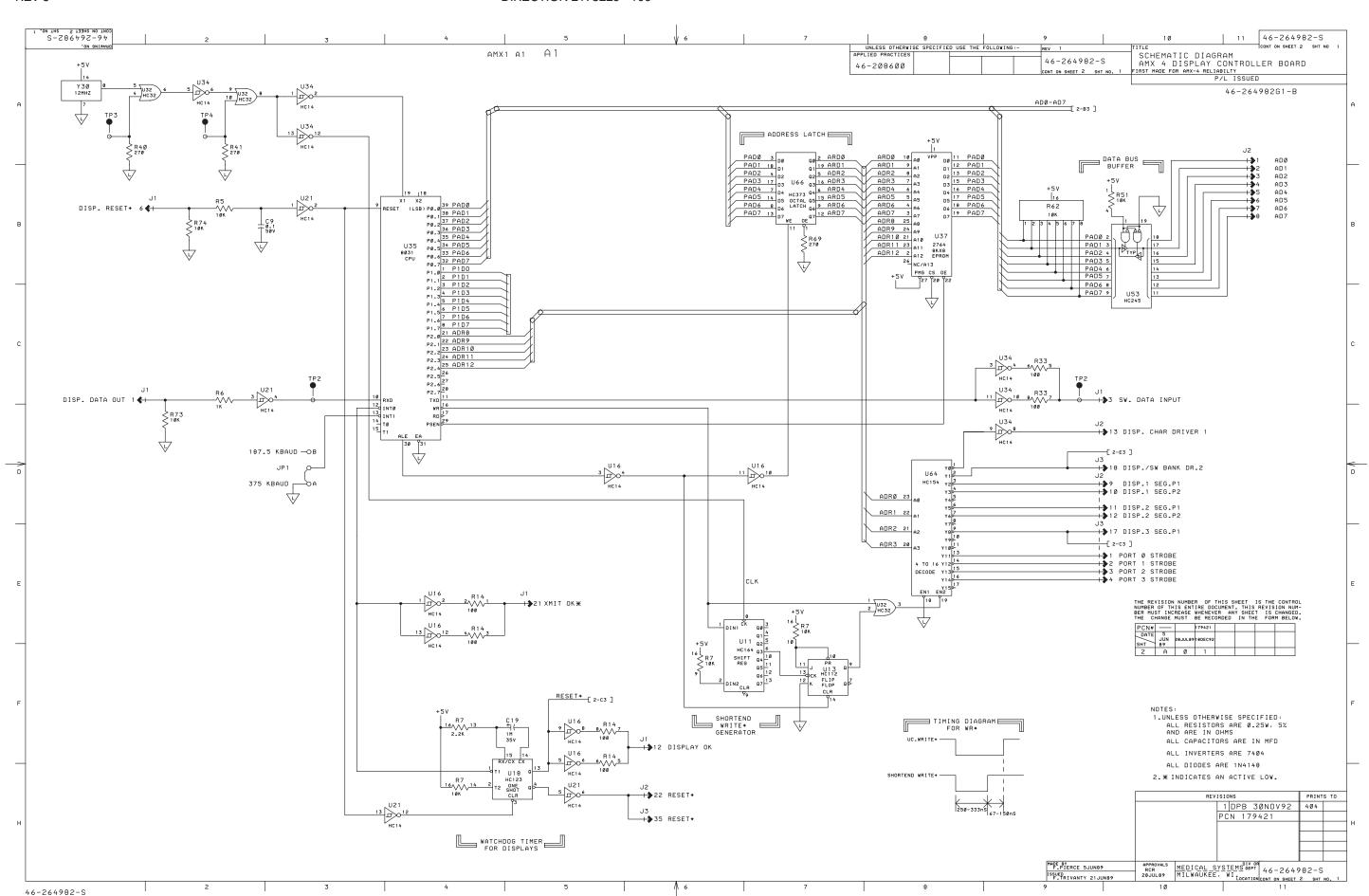
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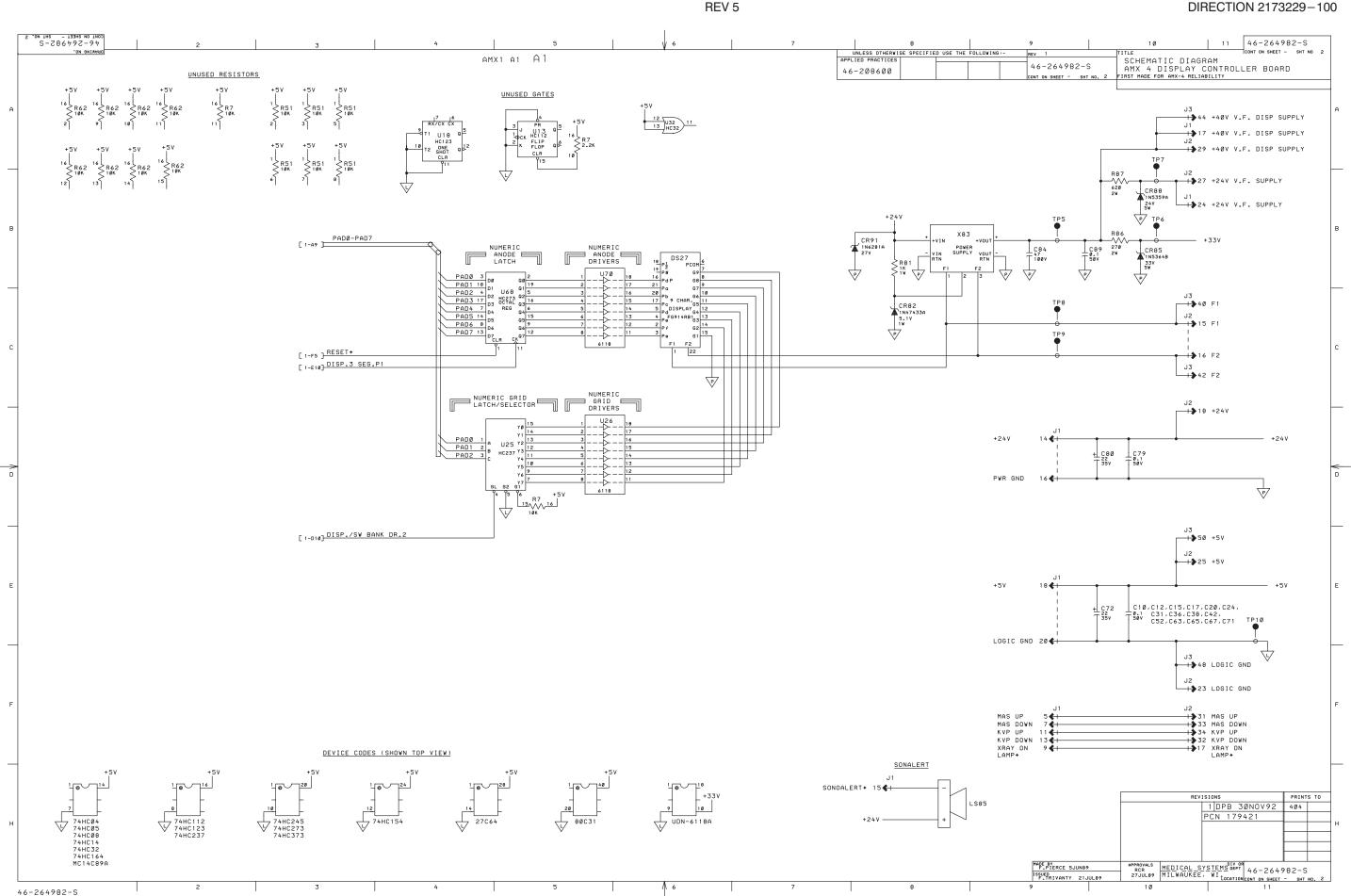
DIRECTION 2173229-100

SECTION 3 DISPLAY CONTROLLER AMX1 A1 A1 46-264982G1



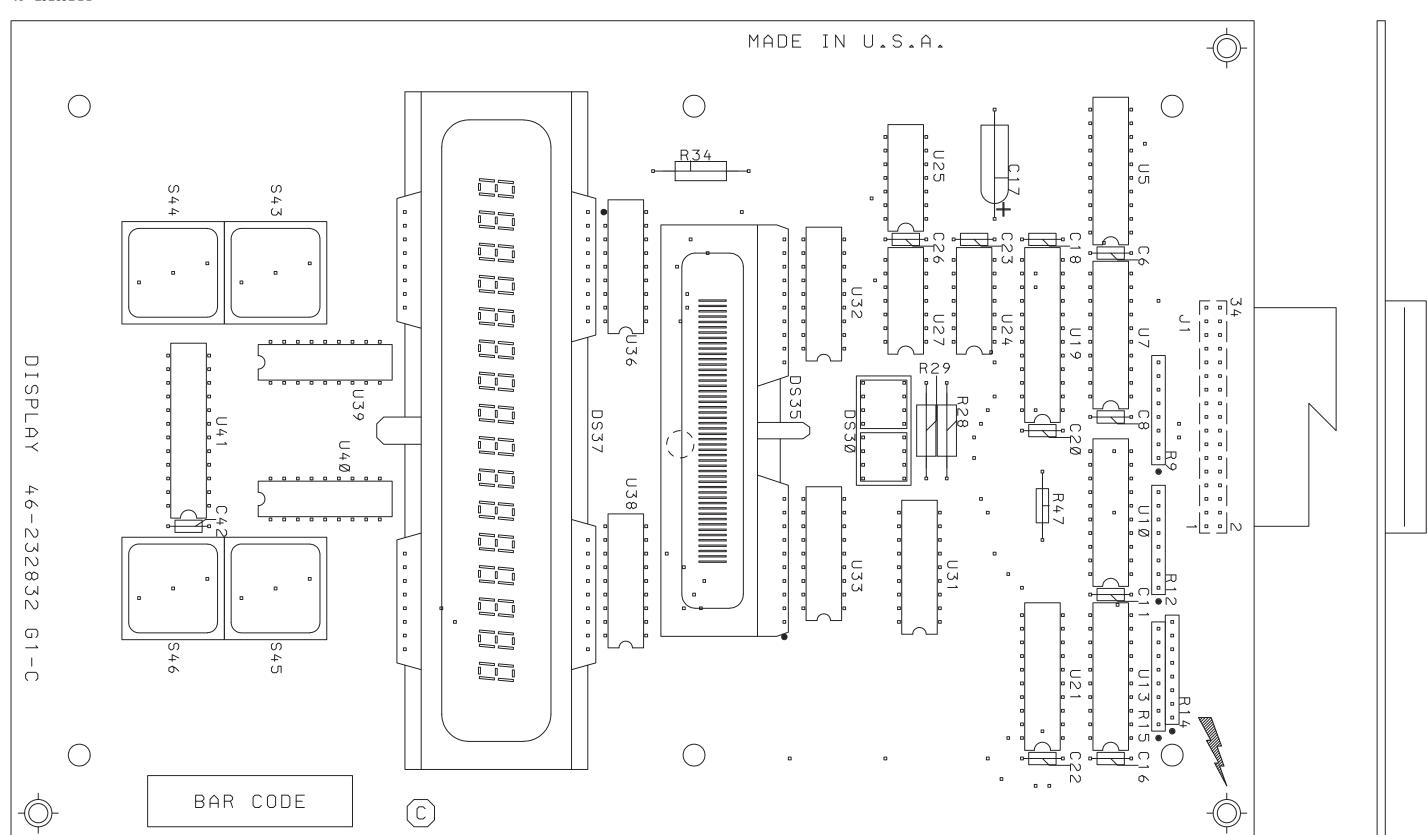
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SECTION 4 DISPLAY AMX1 A1 A2 46-232832G1

REV 5



REV 5

DIRECTION 2173229-100

AMX-4+ SCHEMATICS **GE MEDICAL SYSTEMS** (MODEL 2169360, 2236420 & 2275938 SERIES) REV 5 DIRECTION 2173229-100 ON THE - 133H2 ND THO 11 46-232832-5 SCHEMATIC DIAGRAM AMX 5 DISPLAY BOARD AMX1 A1 A2 46-232832-5 46-208600 CONT ON SHEET - SHT NO 46-232832G1-C DEVICE CODES (SHOWN TOP VIEW) UNUSED GATES 6118 7 U36 DS37 PCOM G16 RESET+ 22**∢**-U36 74HCØ8 74HC32 74HC4Ø75 RESET+ 6118 DISP.1 SEG. P2 10 4 1 3 1 4 U38 6118 UNUSED RESISTORS 6118 7 U38 12 AD6 7 AD5 14 AD4 U38 6118 +5V 25**∢**+ C6,C8,C11,C16,C18, 0.1 C20,C22,C23,C26, 50V C42 6118 U38 6118 2 17 AD3 4 4 + 3 14 RESET+ LOGIC GND 23€ ADØ 2 AD1 3 B AD2 21 C AD3 22 +24V V.F. SUPPLY 27 I R15 DISP.1 SEG.P1 9 4 2 12 F2 16**∢**1 +40V V.F. DISP SUPPLY 29 F2[1- H9] F1 [1-H9] DISP. CHAR DRIVER 1 13 5 4 4 HCØ8 10 9 U25 HC08 RESET+ DISP.2 SEG.P2 12 + 7 VV 8 6118 5 4 HC32 6 EN1 U31 DISP.2 SEG.P1 11 + 5 12 U32 AD7 8 AD6 13 AD5 7 AD4 14 AD3 4 7 AD2 17 AD1 3 AD0 18 AD0 18 AD0 18 6118 6118 6118 U32 6118 RESET+ 6118 → 32 KVP DOWN AD4 2 A A D5 3 B AD6 21 C AD7 22 D 13 10 6 9 6 6 5 2 → 17 X-RAY ON LAMP+ [1-D4] F1 2 1 U27 1 HC32 3 GRID5 DS30 [D4] F2 HLMP2785 REVISIONS 3 DPB 18JUL95 BRKT 11NOV86 PCN 180756 ENG. CHNGS PCN 180756 NOTES: 1.UNLESS OTHERWISE SPECIFIED: ALL RESISTORS ARE 0.25%, 5% AND ARE IN OHMS ALL CAPACITORS ARE IN MFD 1 JLS 29JUN87 PCN 148111

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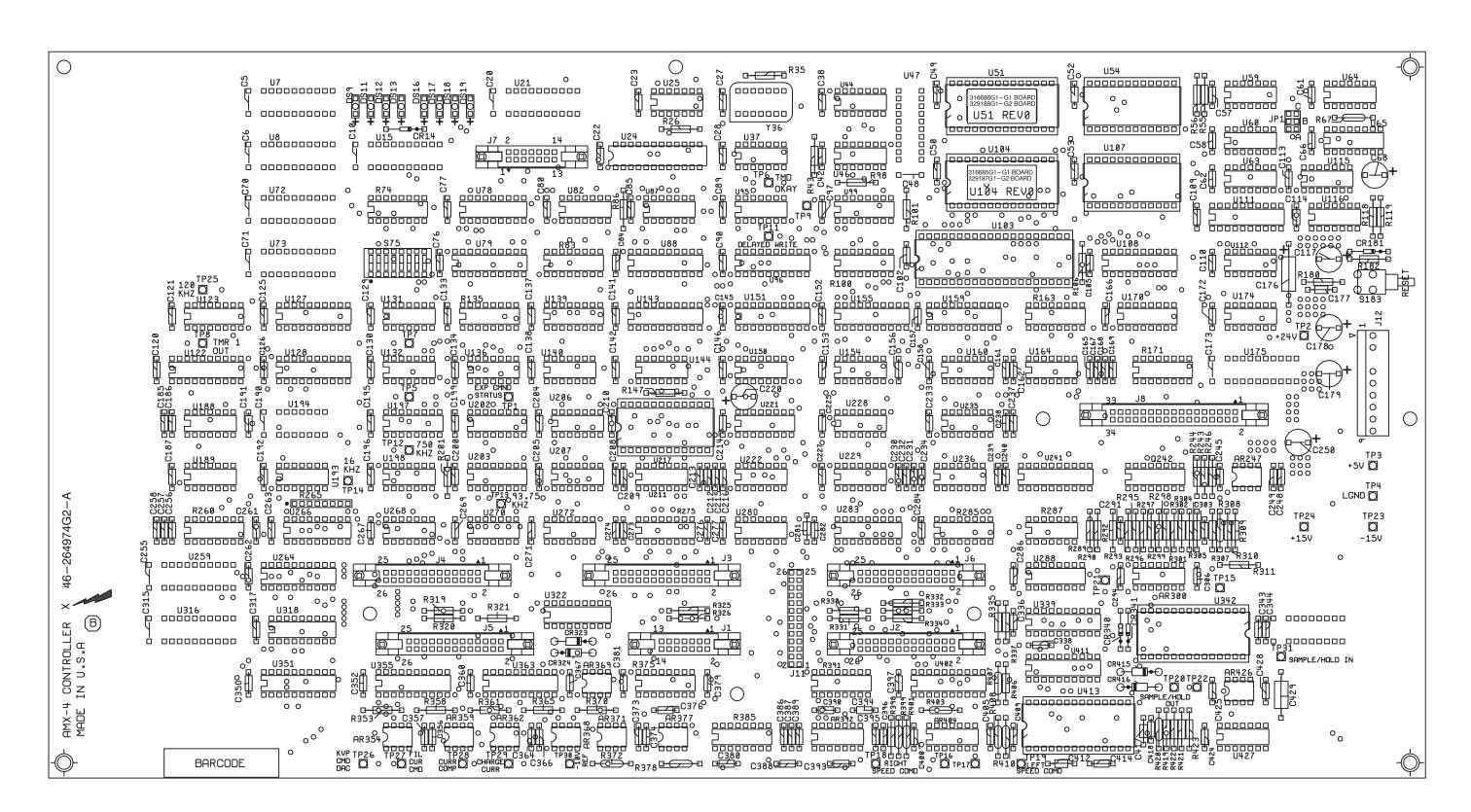
X-RAY ON LAMP

46-232832-S

REV 5

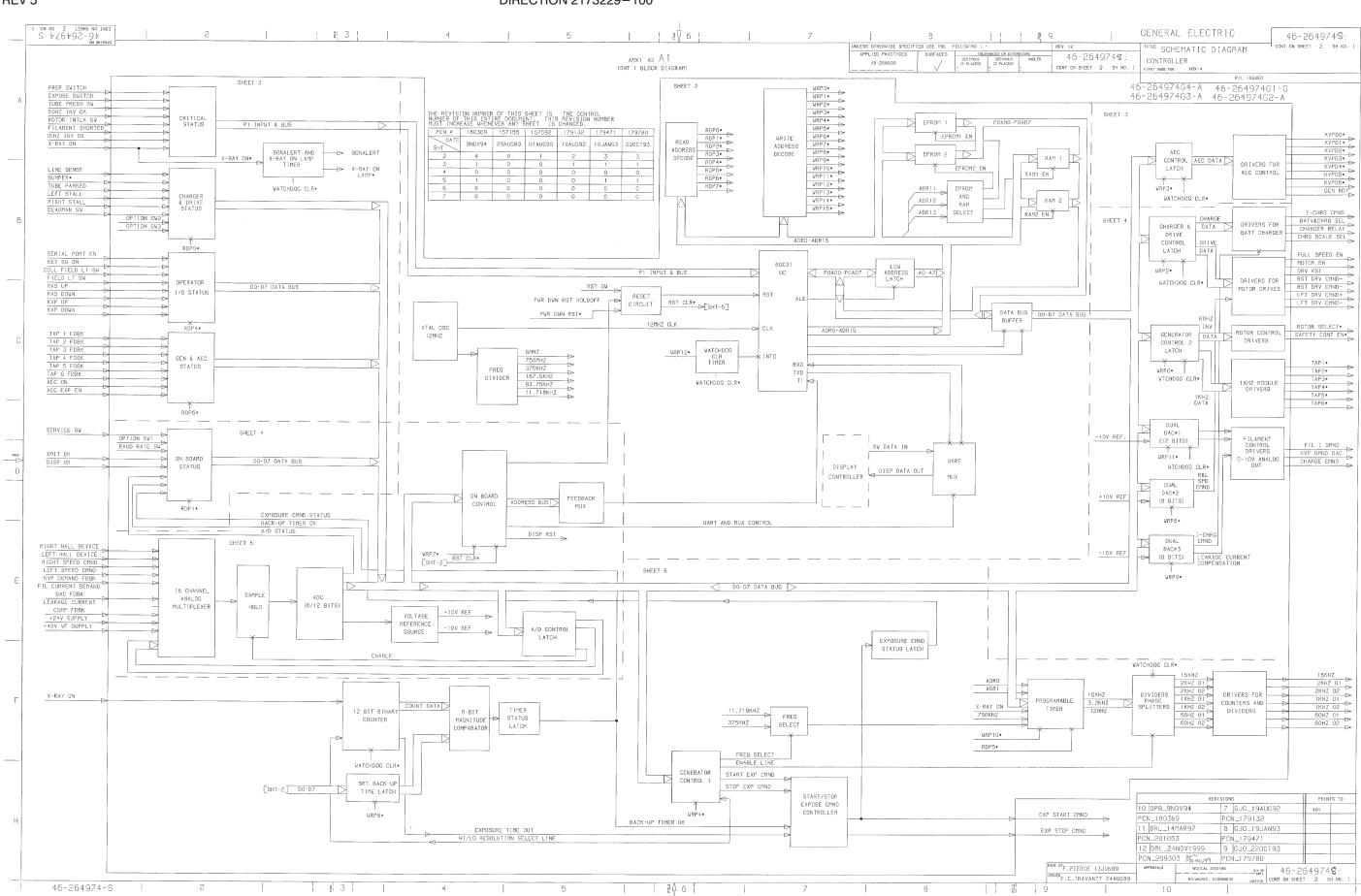
SECTION 5 CONTROLLER AMX1 A2 A1 46-264974G2

REV 5



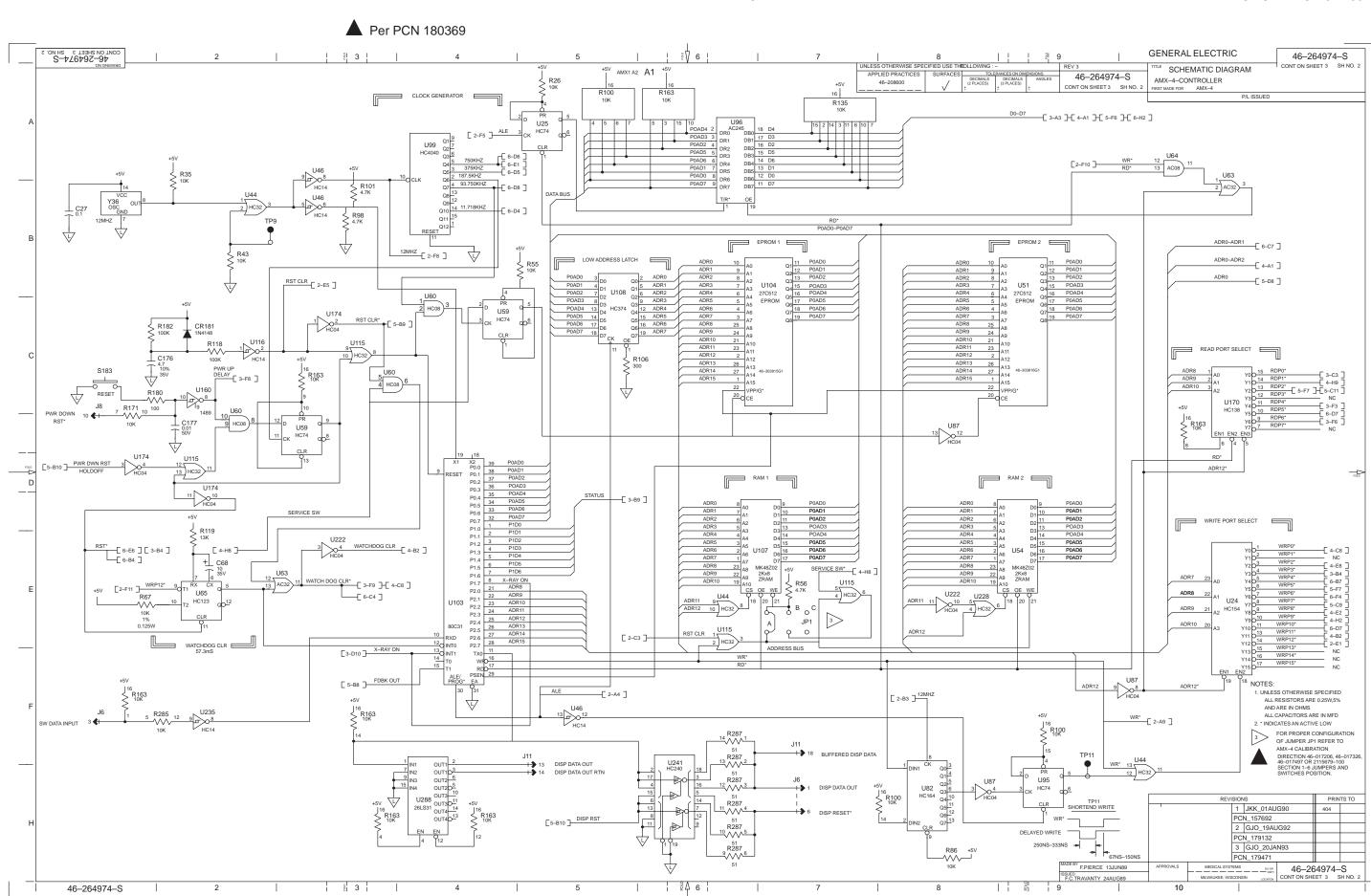
REV 5

REV 5 DIRECTION 2173229-100



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REV 5 DIRECTION 2173229-100



AMX-4+ SCHEMATICS **GE MEDICAL SYSTEMS** (MODEL 2169360, 2236420 & 2275938 SERIES) REV 5 DIRECTION 2173229-100 GENERAL ELECTRIC | 2 3 | ¦ ₽√ 6 ¦ 46-264974-S S-45492-94 46–264974–S SCHEMATIC DIAGRAM AMX1 A2 A1 AMX-4-CONTROLLER CONT ON SHEET 4 SH NO. 3 AEC CONTROL D0-D7 LINE SENSE 64+ [2-A9]---__[3_F8] → 5 KVP2* 12 PREP SW DEBOUNCE CHARGER & DRIVE STATUS [2-D5] STATUS → 1 PREP SW . → 8 GEN READY* U78 ULN2803 BUMPER* 10 €+-EXPOSE SW P1D1 2-D1]-RELAY DRIVERS R331 —Г 3–F8ヿ [2-C11] RDP0* ▼ CR14 TUBE PARKED SW3 €+ _[6-D7] 2 EXPSW TUBE PARKED SW RTN4 DS11 🐧 DS12 🖎 X-RAY PRESS SW 6 TUBE PRESSURE SW 6-C2 DS13 🖎 LEFT STALL 14 DS16 🖎 X-RAY PRESS SW RTN 7 DS17 🖎 DS18 RIGHT STALL 12 4 P1D4 ROTOR INTLK 3◀ DRIVE ENA SW 27 1KHZ INVERTER READ¶2€ 17 DRIVE ENA SW TAP 1 FDBK 19€ DRIVE ENA SW RTN 28 DRIVE ENA SW → 7 DRIVE ENA SW FIL SHRT DETECT 25◀ TAP 2 FDBK 17 X-RAY ON 2-F3]-[6-E1] GENERATOR & AEC STATUS OPERATOR I/O STATUS X-RAY ON 22 KEY SWITCH ON1 4+ R326 10K TAP 3 FDBK 15◀ R320 2.2K —[3–F8] S75 P CRITICAL STATUS INPUTS TAP 4 FDBK 13 € PWR UP DELAY 16_{R83} 2-C27-FIELD LIGHT SW RTN 17 [2-C11] RDP4* TAP 5 FDBK 9◀ [2-D11] RDP6* HAND SW COM24 41 TAP 6 FDBK 7◀ U283 10 4 3-A2 LINE SENSE BUMPER* MAS UP 5 ◀ 2-E4] WATCHDOG CLR* 3-B2 TUBE PARKED ULN2803 AEC ON 1 € 47.6mS X-RAY INDICATORS MAS DOWN 7 AEC EXP EN 9 €+ __[3-F8] 13 11 11 C232 112 117 50V

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F.C.TRAVANTY 24AUG89

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46-264974-S CONT ON SHEET 4 SH NO.

2 3

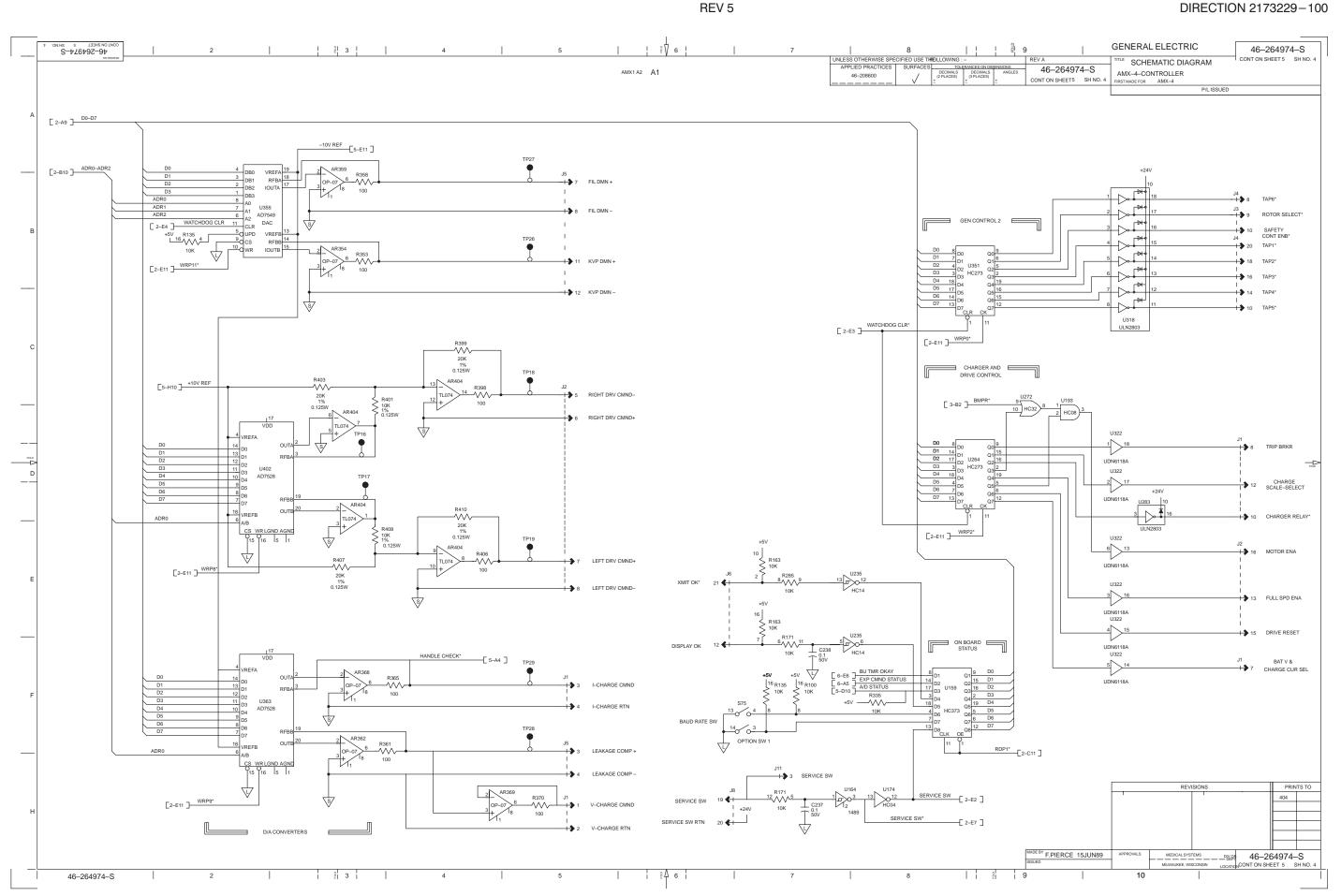
KVP UP 11 €+

KVP DOWN13 €+

46-264974-S

____[3–H8]

10K ___[3–H8]



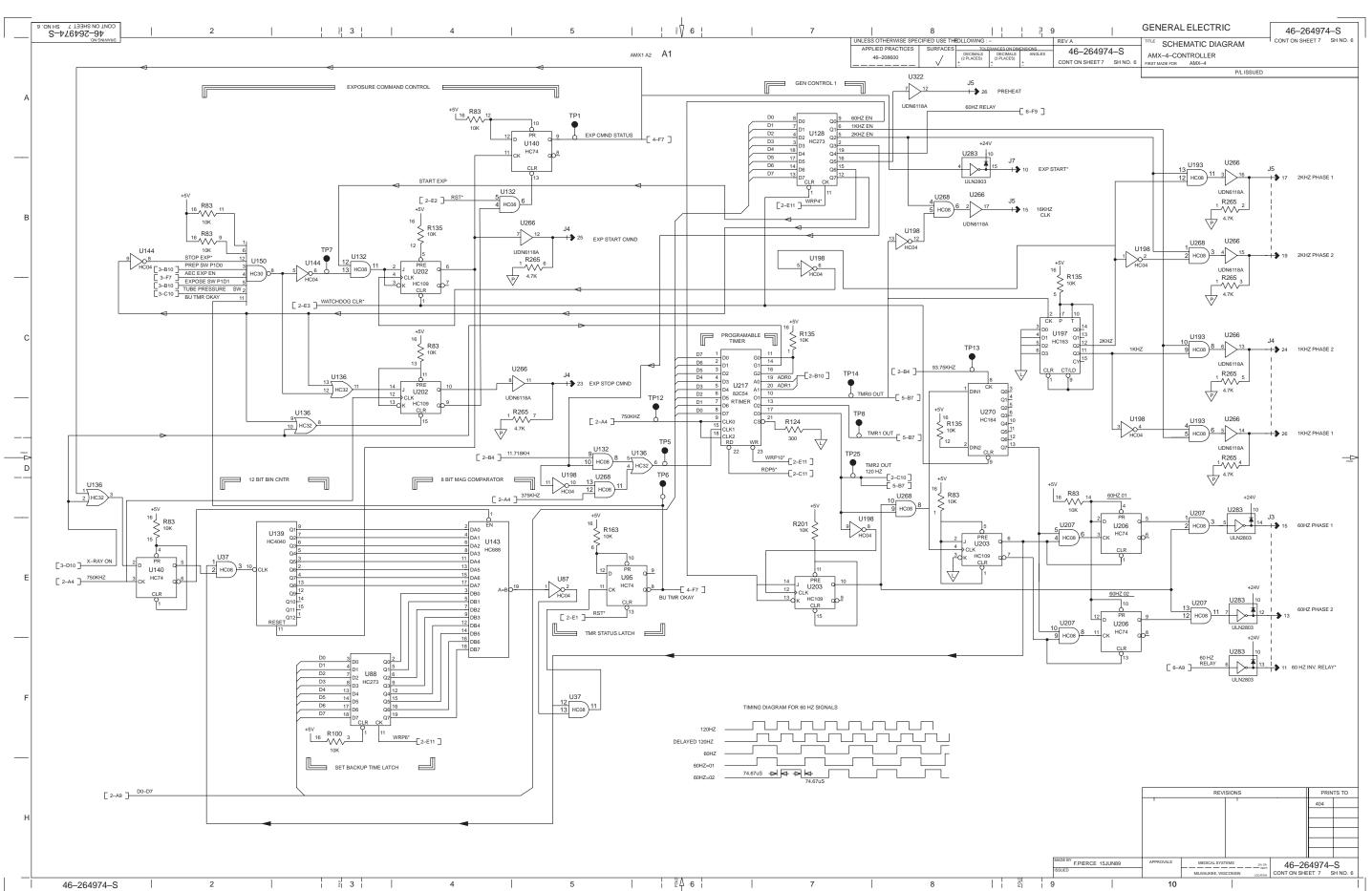
GE MEDICAL SYSTEMS (MODEL 2169360, 2236420 & 2275938 SERIES) REV 5 DIRECTION 2173229-100 GENERAL ELECTRIC 46–264974–S 46-264974-S CONT ON SHEET 6 SH NO. 5 SCHEMATIC DIAGRAM 46-264974-S AMX-4-CONTROLLER CR340 CONT ON SHEET 6 SH NO. 5 LET MAN TOS OUT → 21 LEFT HALL INPUT U123 HC151 C394 TMR1 OUT E 3 RST CLR* RIGHT DRV FDBK -AR392 R419
1.13K
1% R423 30.1K R337 ANALOG MUX SAMPLE/HOLD P 12 BIT ADC R391 A0 16 AMUX1 15 AMUX2 A3 14 AMUX3 AR392 LEFT DRV FDBK + U342 0.1 50V R385 \$ 10K 1% 0.125W R420 A/D CTRL 49.9 1% 0.125W R385 12 15K 1% R375 R310 10K Q242 CA3083 AR377 +10V REF +40V VF DISP SUPPLY ♦ 6 HALL RGT REF RTN ♦ 8 HALL LFT REF RTN LEAKAGE COMP FDBK -PRINTS TO 1 GJO_20JAN93 PCN_179471 404 FR299 MEDICAL SYSTEMS _____OFFIT 46-264974-S
MILWAUKEE, WISCONSIN LOCATION CONT ON SHEET 6 SH NO. ^{NDE BY}F.PIERCE 15JUN89

| 24 6 |

46-264974-S

₫ 3

DIRECTION 2173229-100



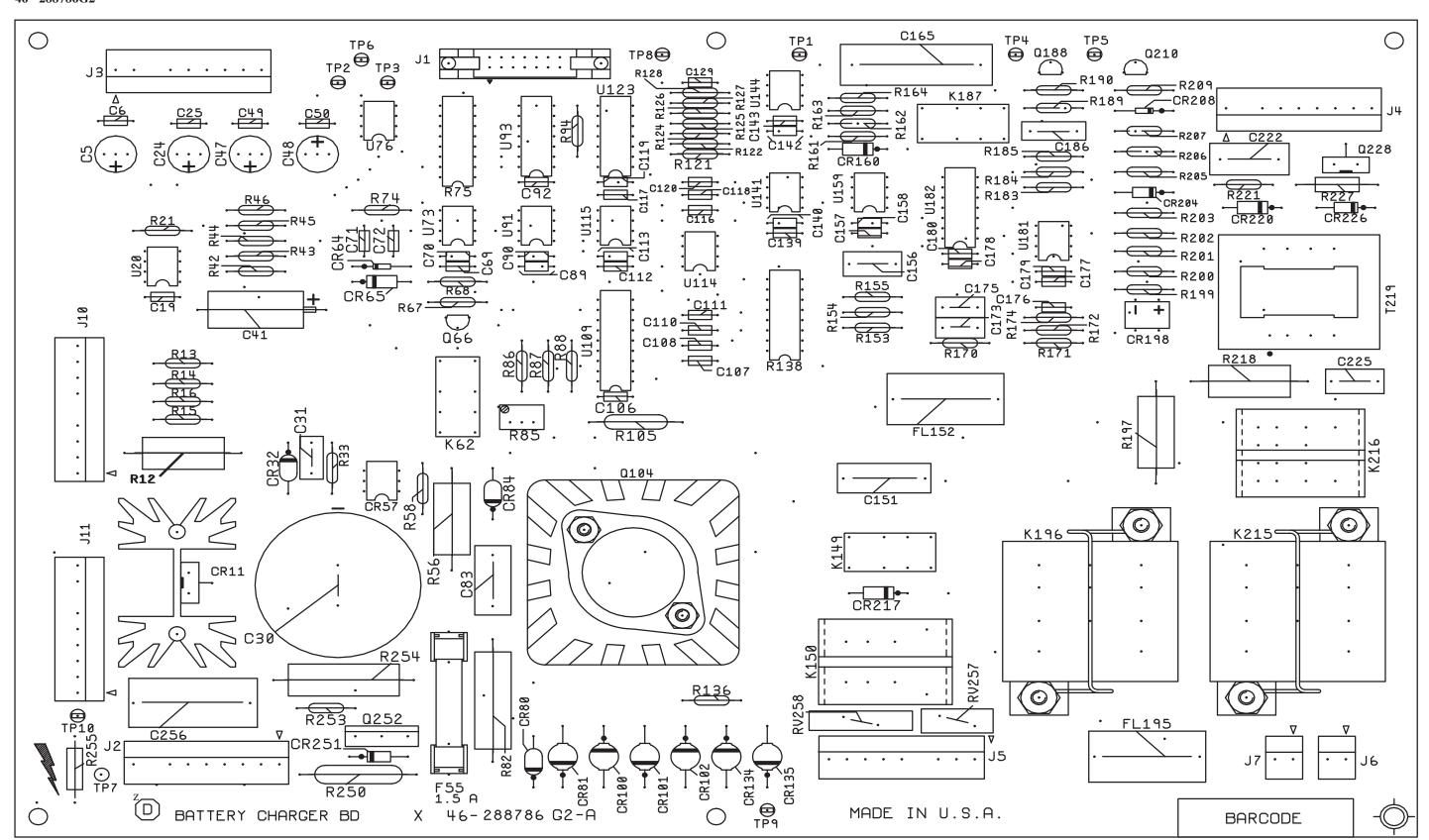
REV 5 DIRECTION 2173229-100 GENERAL ELECTRIC 46–264974–S 46-264974-S CONT ON SHEET - SH NO. 7 SCHEMATIC DIAGRAM APPLIED PRACTICES 46-264974-S AMX1 A2 A1 AMX-4-CONTROLLER CONT ON SHEET - SH NO. SPARES → 18 +5VDC +5VDC 9 10T1 U65 Q 1 U427 C22,C23,C27,C28,C38,C42,C49,C50,C52,C53,C57,C58,C61,C62,C66,C76,C77,C80,C84,C85, 1 HC04 U322 C89.C90.C97.C102.C105.C109.C110.C113.C114. C120,C121,C125,C126,C130,C134,C137,C138, U427 3 F 4 HC14 C141,C142,C145,C146,C152,C153,C157,C158,C162, 3 HC04 C166,C172,C186,C187,C192,C195,C196,C199 C200,C204,C205,C209,C210,C214,C216,C225, UDN6118A U266 R83 10K U427 C227.C233.C234.C240.C262.C263.C267.C269. C271,C277,C286,C317,C336,C338,C350,C360, 1, 2,9,10,11,12,13 2,3,4,5,6,7 9 T1 U221 0 5 T2 HC123 0 12 UDN6118A U427 U116 11 10 HC14 U37 CLR LOGIC GND 8 LOGIC GND U131 +⇒ 23 LOGIC GND U154 ວ 1489 U235 11 +15VDC 6 € HC14 C245,C294,C343,C352,C356,C366 0.1UF C367,C374,C389,C400,C425 SIGNAL GND 54 ALL DEVICES SHOWN TOP VIEW C249,C306,C344,C357,C364, C373,C381,C395,C405,C428 + C179 10UF 10% 50V TP23 -15VDC 4**←** TP2 +24VDC 2 +24VDC +24VDC ULN-2803A 74HC04 74HC08 74HC14 74HC30 74HC32 74HC74 74HC125 74HC164 74HC21 DS14C89A 74AC08 74AC32 74HC112 74HC123 74HC138 74HC221 74HC151 74HC4040 DS26LS31 DS26LS31 74HC163 74HC163 74HC163 74HC163 74HC273 → 16 PWR GND PWR GND 1◀ 74HC373 74HC533 74HC245 74HC374 74HC688 74HC240 +5VDC PRINTS TO 404 AD574AF 00YOR 46-264974-S CONT ON SHEET - SH NO. F.PIERCE 15JUN89 SYSTEMS DIVOR
DEPT.
E, WISCONSIN | 24 6 | 46-264974-S

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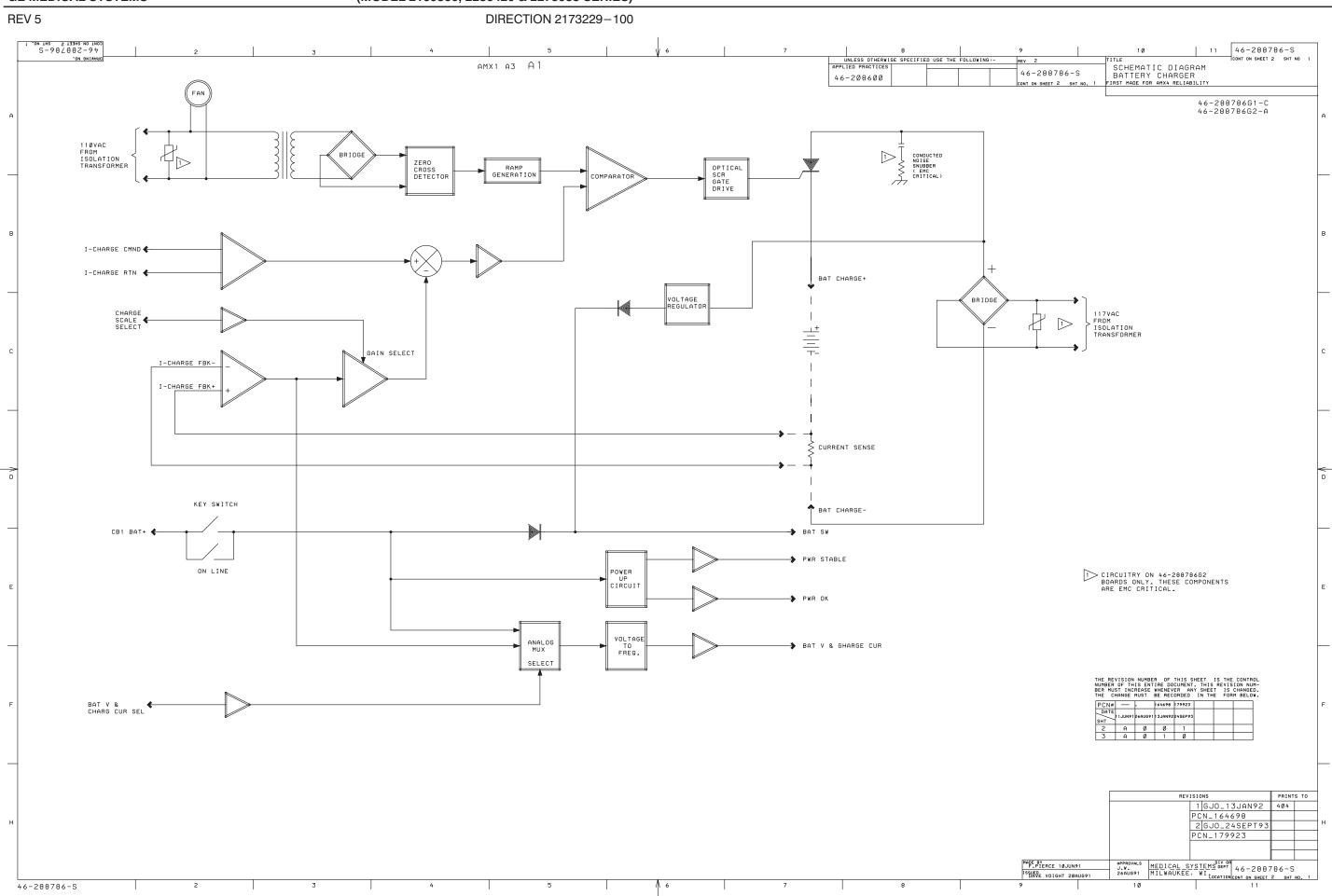
DIRECTION 2173229-100

SECTION 6 BATTERY CHARGER AMX1 A3 A1 46–288786G2

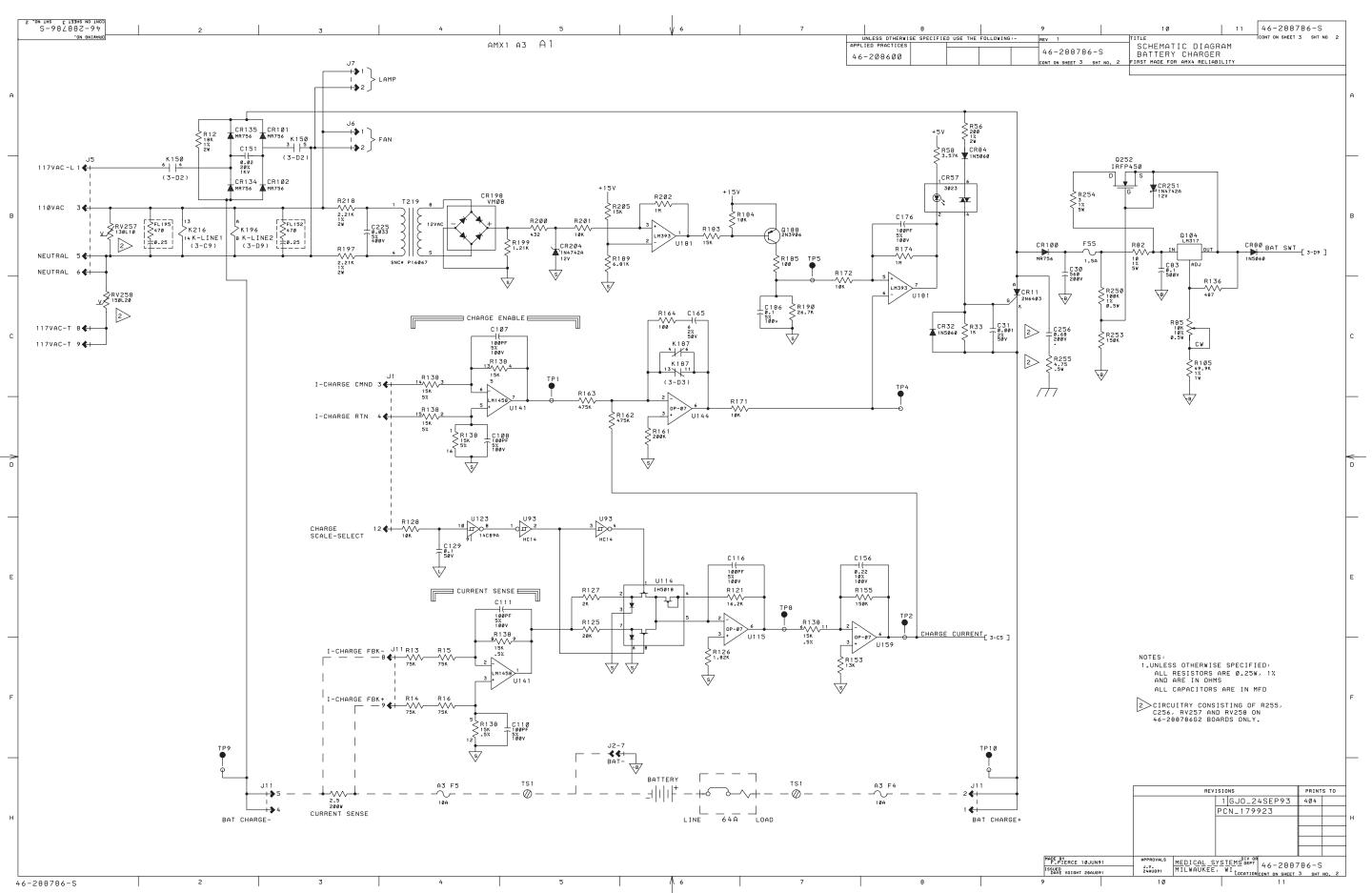
REV 5



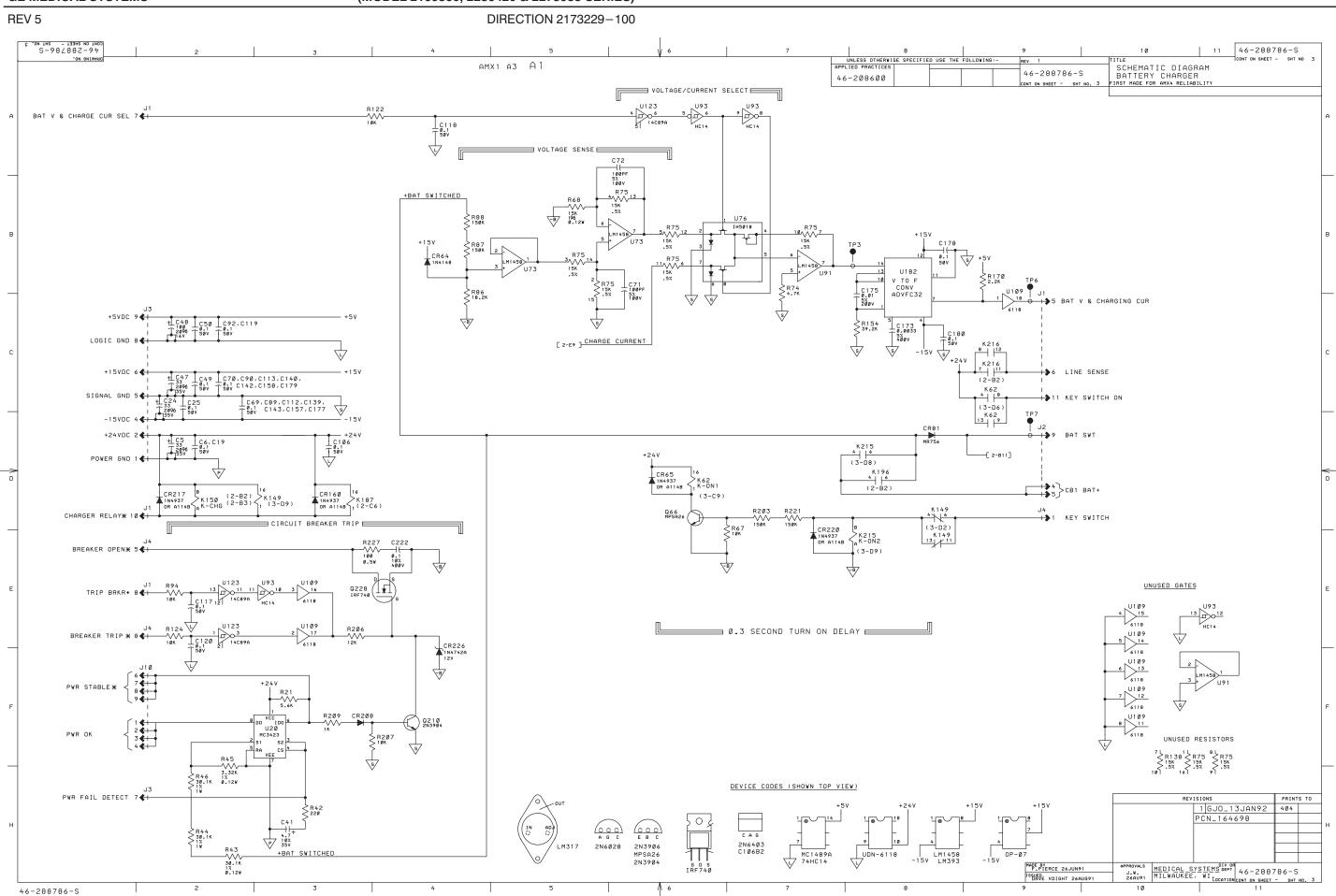
DIRECTION 2173229-100



DIRECTION 2173229-100



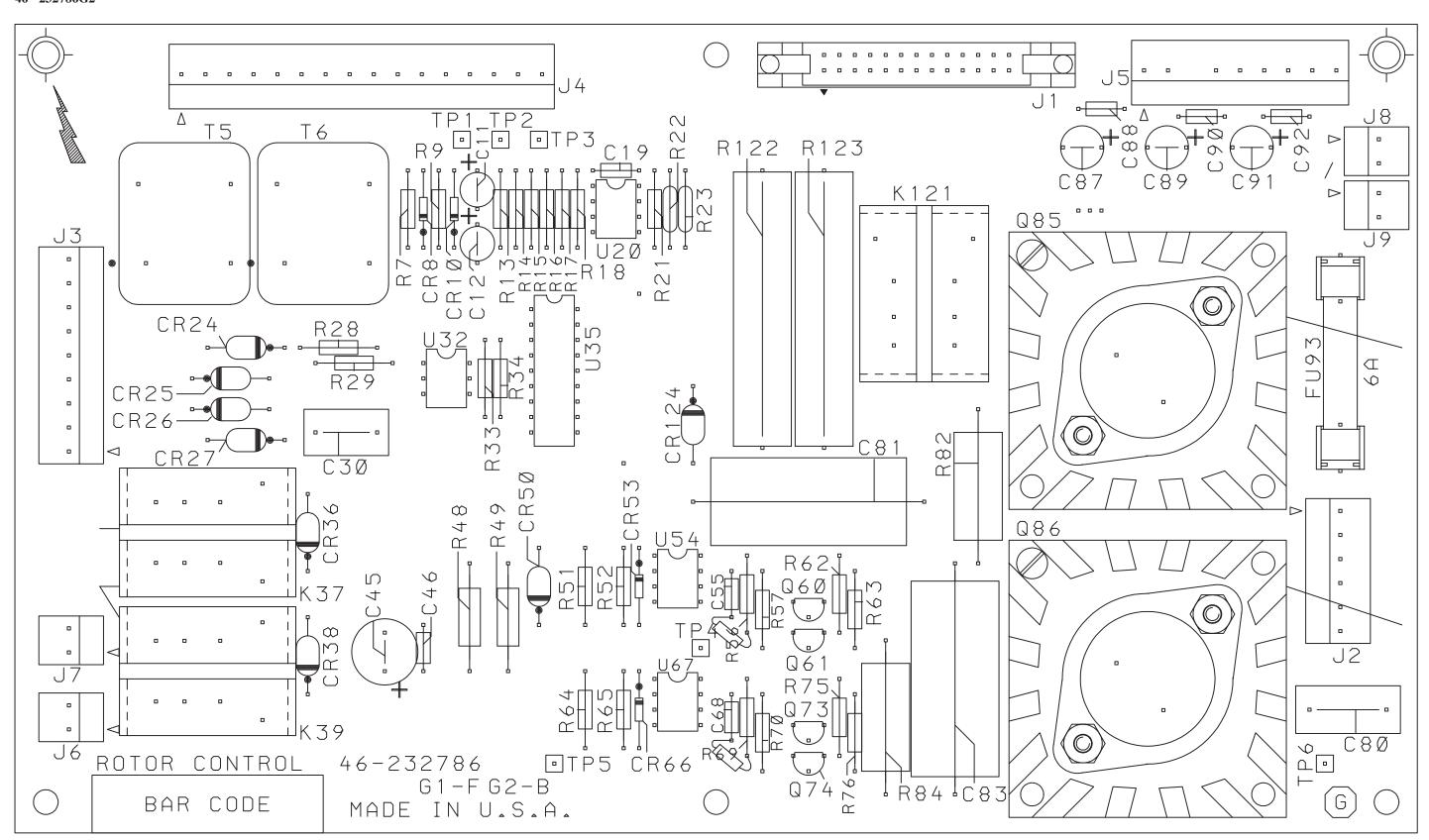
6-5



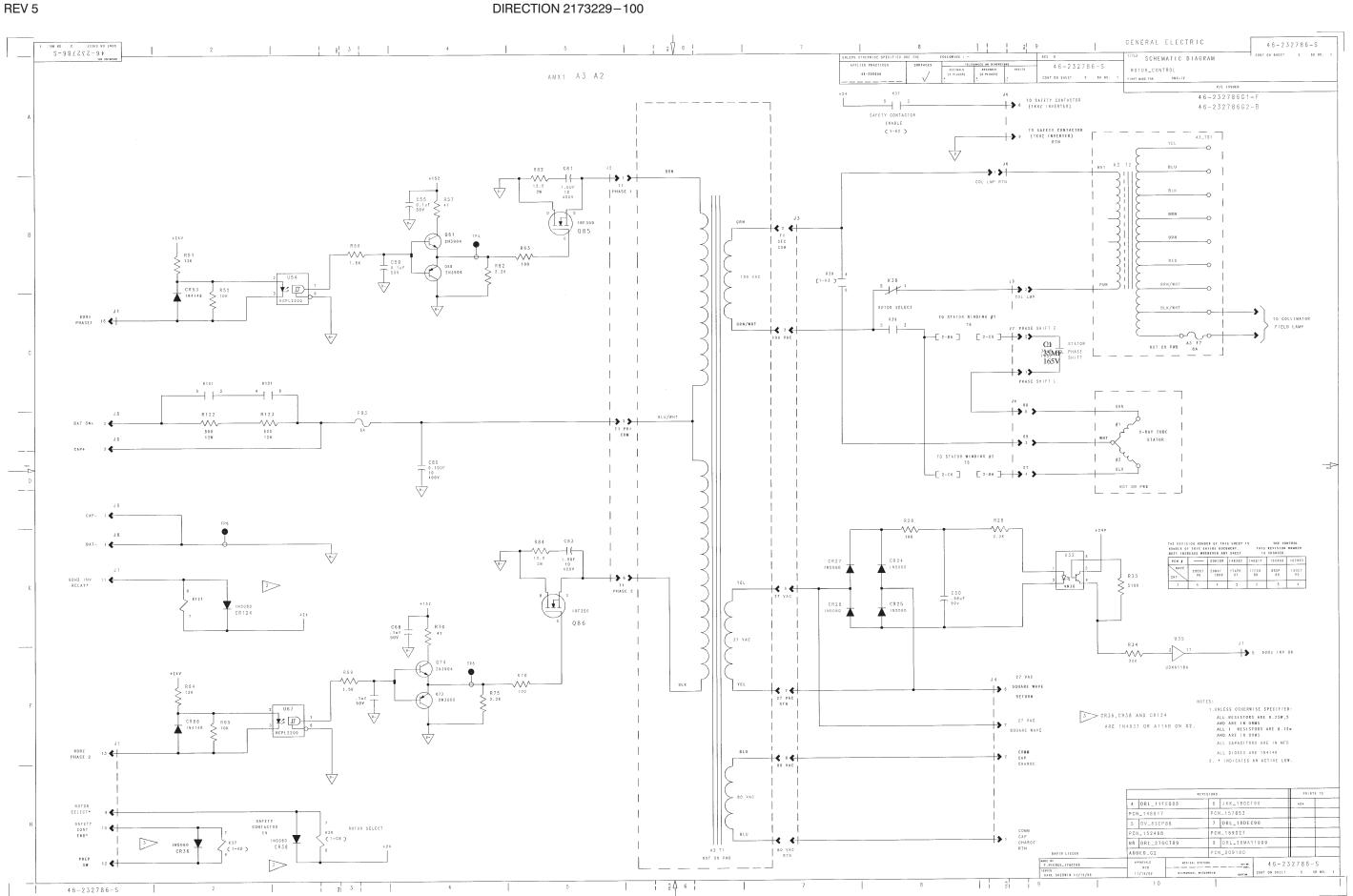
DIRECTION 2173229-100

DIRECTION 2173229-100

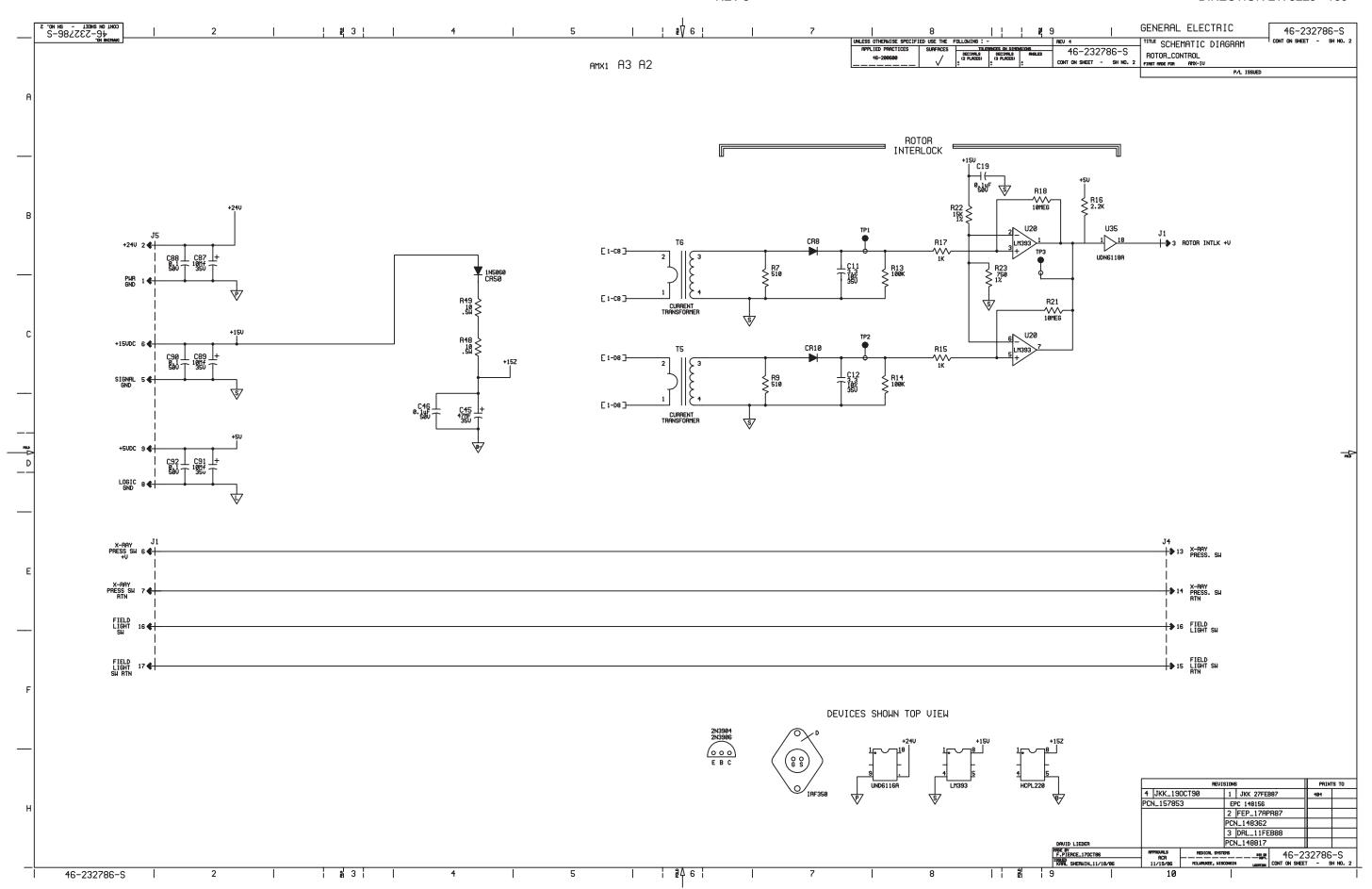
SECTION 7 ROTOR CONTROLLER AMX1 A3 A2 46–232786G2



REV 5

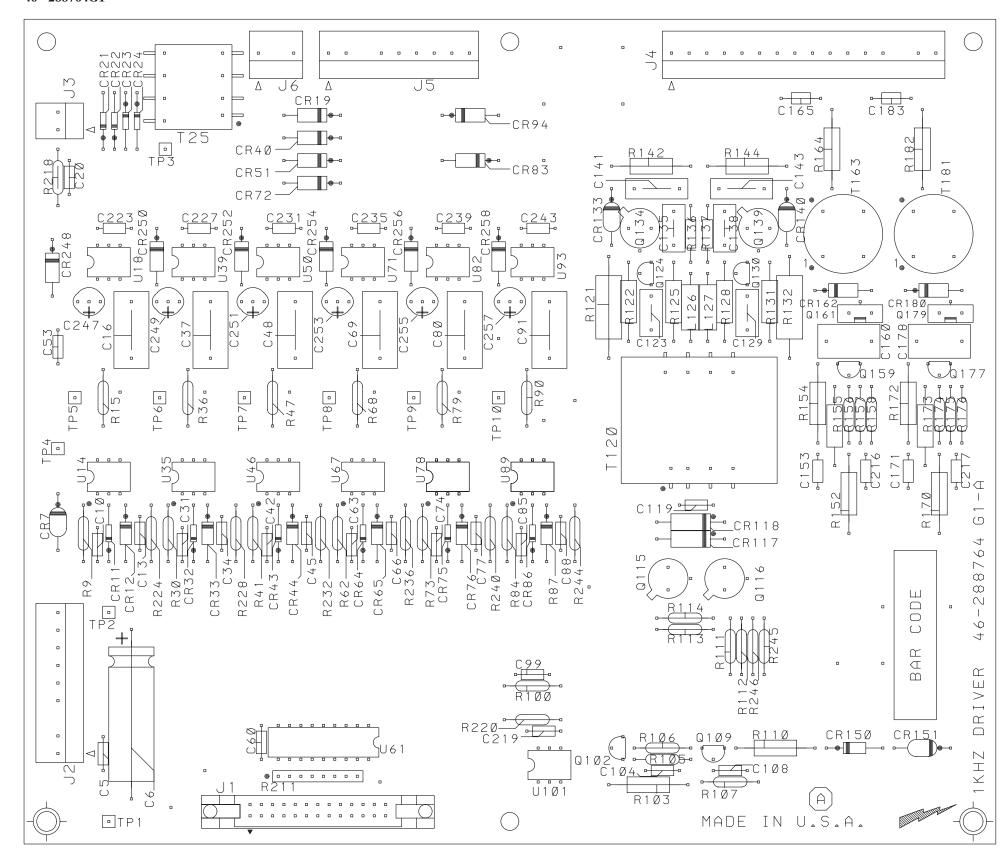


DIRECTION 2173229-100



SECTION 8 1KHZ INVERTER AMX1 A4 A1 46–288764G1

REV 5



REV 5

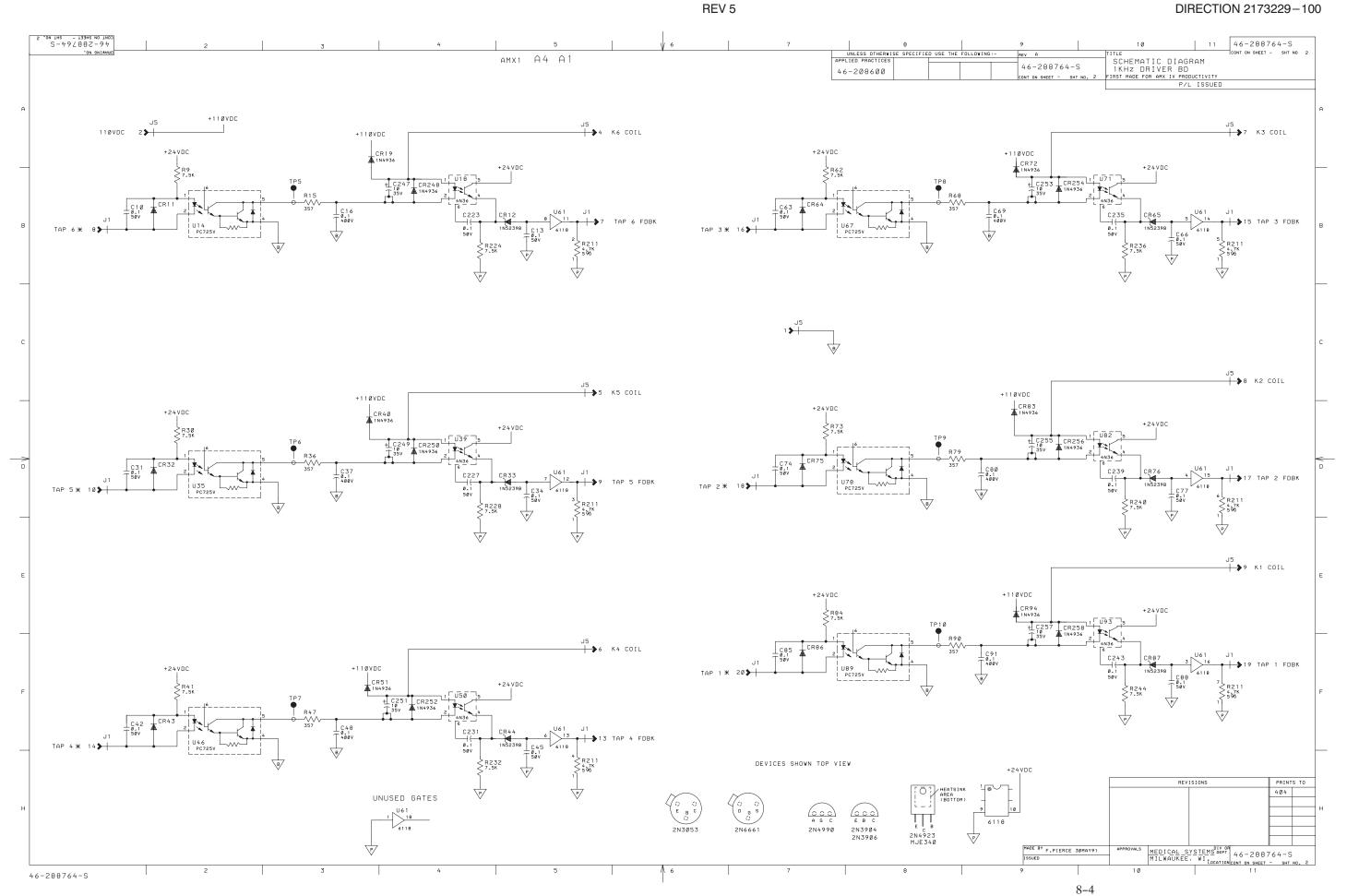
46-288764-S

REV 5 DIRECTION 2173229-100 CONT ON SHEET 2 SHT NO. SCHEMATIC DIAGRAM

1KHZ DRIVER BD

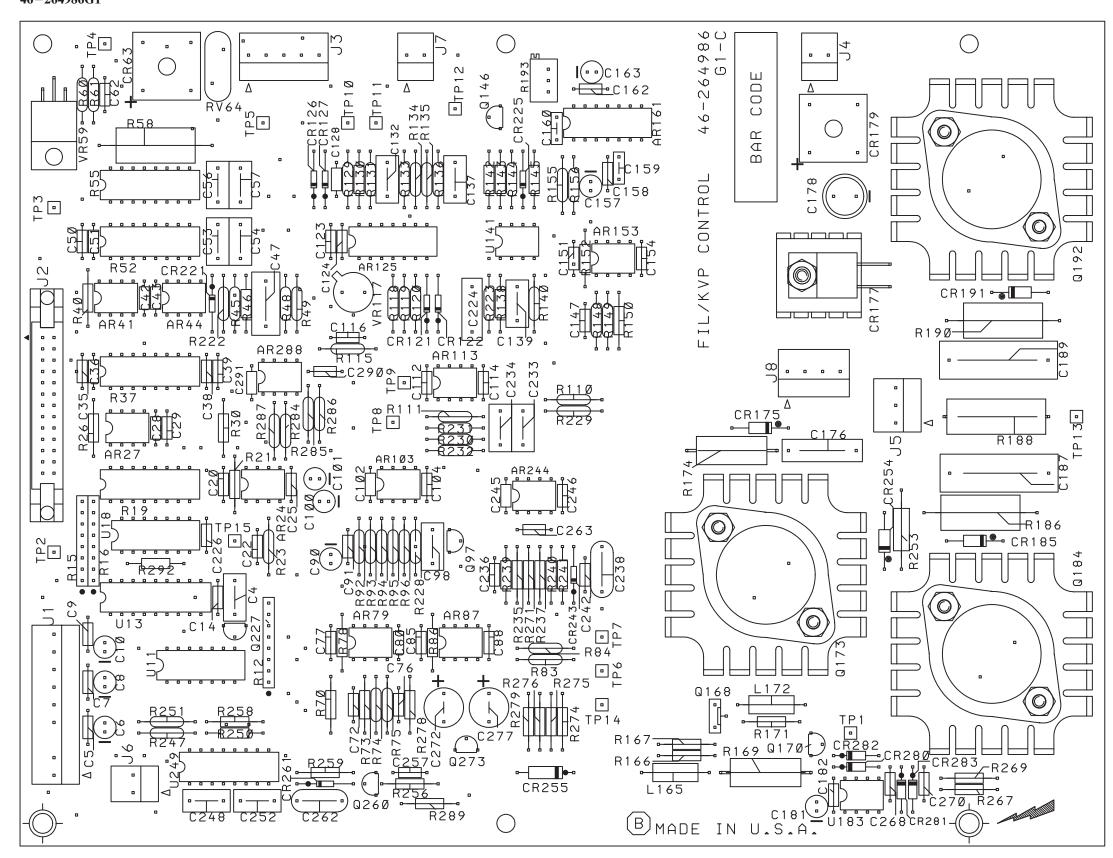
IRST MADE FOR AMX IV PRODUCTIVITY

P/L ISSUED A4 A1 AMX1 46-288764-S 46-208600 CONT ON SHEET 2 SHT NO. 46-288764G1-A +24VDC 23-PWR GND PIN 1-3 APPX. 3.118KΩ PIN 6-8 APPX. 21.1Ω 20:1 1KHz T25 K3-3 3**≯**-CR24 CR23 1KHz 2 PHASE 2 CR117 1N537ØB 56V 5W +24VDC **→**2 KV FDBK -K6-3 1 R128 1 C129 ≥2.74K 10047 0.5W 100V ₹144 100 0.5¥ Q115 Q139 2N3053 0130 2N4990 CR140 1KHz 26 PHASE R131 24:21 1KHz T120 $\overline{\nabla}$ PIN 1-4 APPX. 13.31 Ω PIN 6-8 APPX. 12.26 Ω +24VDC STOP SCR HI ₹8155 1K Ø.5W CR162 +24VDC EXP STOP 23 →9 STOP SCR LO Q161 2N4923 1:1 T163 PIN 1-2 APPX. 4.8 Ω PIN 3-4 APPX. 4.9 Ω → 12 1KHz INVERTER READY C219 THE REVISION NUMBER OF THIS SHEET IS THE CONTROL NUMBER OF THIS ENTIRE DOCUMENT. THIS REVISION NUMBER MUST INCREASE WHENEVER ANY SHEET IS CHANGED. THE CHANGE MUST BE RECORDED IN THE FORM BELOW. →11 START SCR HI CR18Ø EXP J1 START 25 →13 START SCR LO Q179 2N4923 1:1 T181 1.UNLESS OTHERWISE SPECIFIED: ALL RESISTORS ARE 0.25W, 1% AND ARE IN OHMS PIN 1-2 APPX. 4.8 Ω PIN 3-4 APPX. 4.9 Ω ALL CAPACITORS ARE IN MFD ALL DIODES ARE 1N4148 2.* INDICATES AN ACTIVE LOW. REVISIONS PRINTS TO 404 MEDICAL SYSTEMS DEET 46-288764-S
MILWAUKEE, WI LOCATION CONT ON SHEET 2 SHT NO. 1

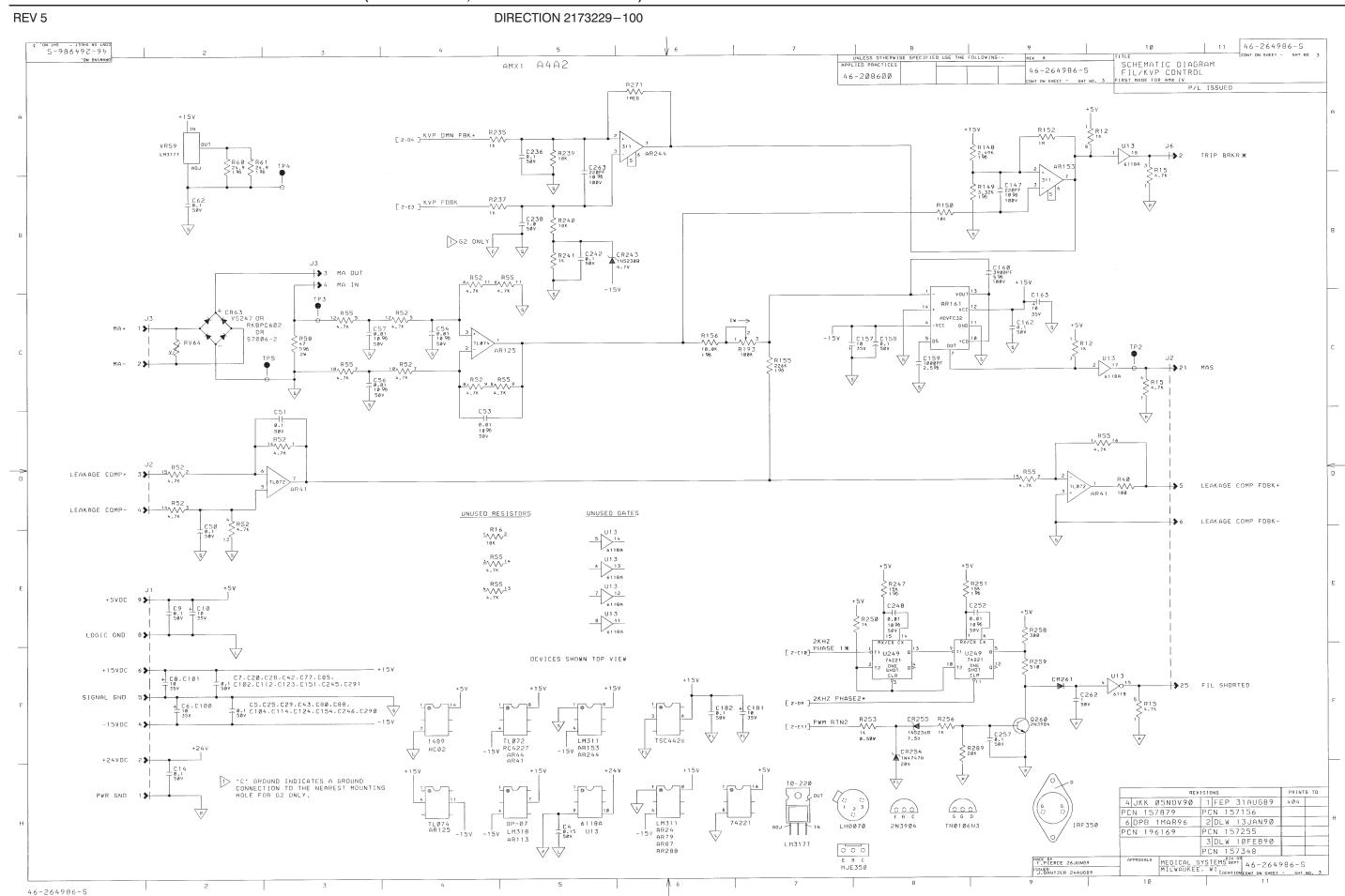


SECTION 9 KVP/FIL CONTROL AMX1 A4 A2 46-264986G1

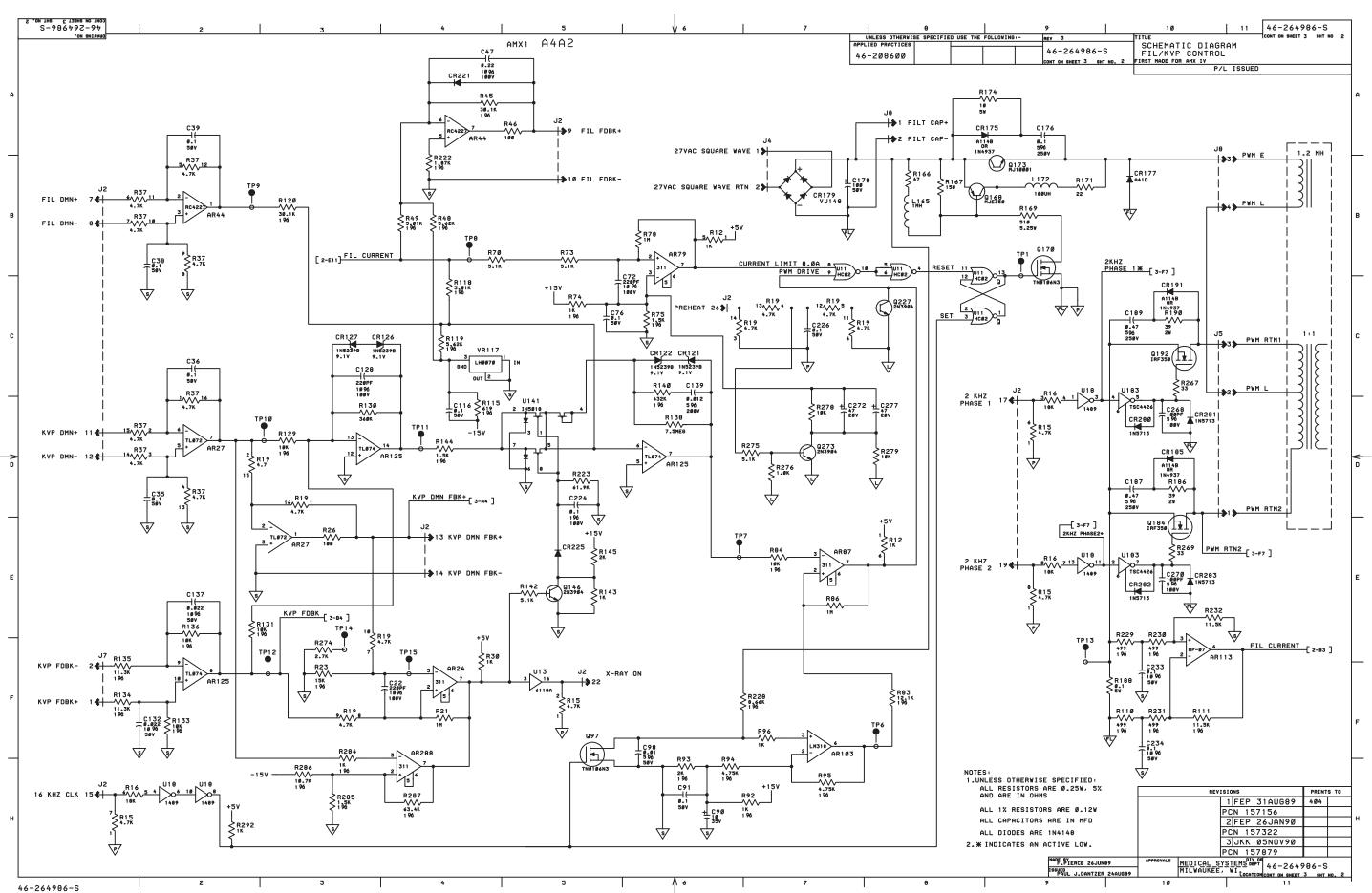
REV 5



DIRECTION 2173229-100



REV 5 DIRECTION 2173229-100



AMX-4+ SCHEMATICS **GE MEDICAL SYSTEMS** (MODEL 2169360, 2236420 & 2275938 SERIES) REV 5 DIRECTION 2173229-100 UNLESS DIHERVISE SPECIFIED USE THE FOLLOVING: APPLIED PRACTICES 11 46-264986-S SCHEMATIC DIAGRAM FIL/KVP CONTROL FIRST MADE FOR AMX IV AMX1 A4A2 46-264986-S 46-208600 CONT ON SHEET 2 SHT NO. 1 46-264986G2-A SAWTOOTH 16 KHZ CLK 🚓 X-RAY ON KVP FDBK+ PWM DRIVER FIL DMN-INDUCTOR KVP OVER VOLTAGE 15 KV OVER DEMAND LEAKAGE COMP-VOLTAGE TO FREQUENCY CONVERTER → MA SIGNAL 100 MA-16 KHZ NDM TRIP BREAKER *
>150 MA OR 15 KV
ABOVE DEMAND MA DUT 🗲 REVISIONS PRINTS TO
4 DLW 23FEB90 1 FEP 31AU689 404
PCN 157348 PCN 157156
5 JKK 05N0V90 2 DLW 13JAN90
PCN 157879 PCN 157255
6 DPB 1MAR96 3 FEP 26JAN90
PCN 196169 PCN 157322
APPROVALS MEDICAL SYSTEMS OFFT 46-264986-S
MILWAUKEE, WI LOCATIONICONY DAS SMEET 2 SMI NO. 1 REVISIONS

F.PIERCE 26JUN89
ISSUED PAUL J.DANTZER 24AUG89

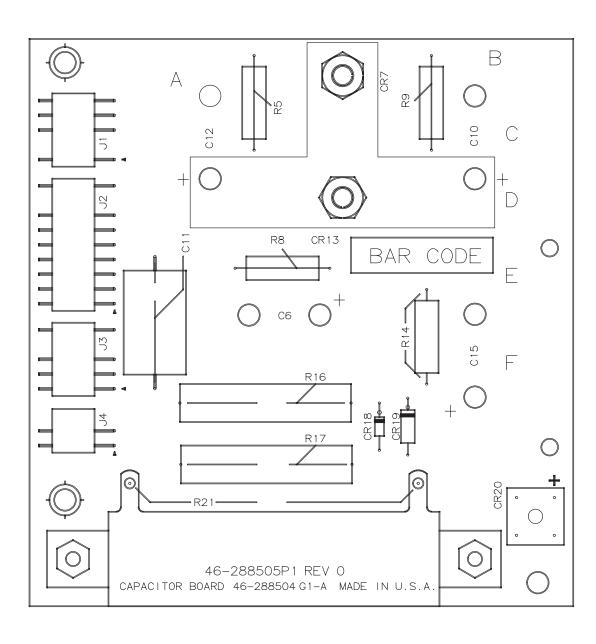
MA IN

46-264986-S

DIRECTION 2173229-100

SECTION 10 CAPACITOR BOARD AMX1 A4 A3 46-288504G1

REV 5



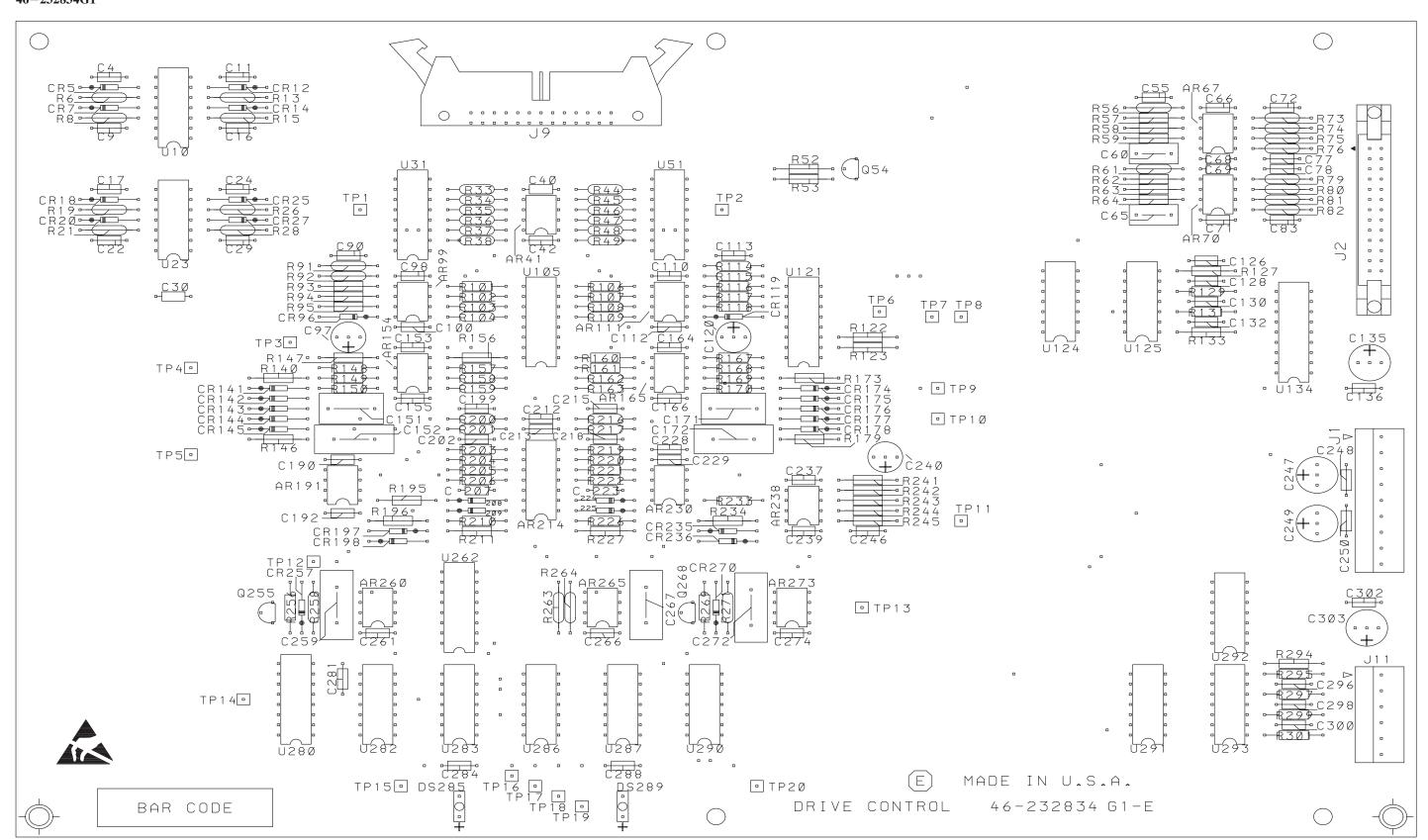
REV 5

REV 5 DIRECTION 2173229-100 AMX1 **A4 A3** J2-5 #BATT_SWITCHED CR18 CR19 ← +BATT_SW TCHED 1N5352 V15. 0 J2-3 —BATT J1-5 **◀** -BATT -BATT R 9 27 K 5% 2. 0W + C10 + C12 1 N1 186 CR13 J1-3 COM CAP_CHARGE 770U 250V 10% STOP_CAP J2-1 J1-4 COM_CAP_CHARGE_RTN NOTE: J3-3 FILTER_CAP+ Components in dashed areas, are not part of this board assembly. C6, C10, C12, C15, L3 are part of the Capacitor module assembly 46-303913G1. J3-1 **▼**PWM_E J3-2 **₹** PWM_L BLOCK PATHNAME /user/amx_4/cap_bd SHEET 1 OF -REVISIONS LOCATION CODE APPROVALS GE MEDICAL SYSTEMS CAPACITOR_BOARD 4 6 - 2 8 8 5 0 4 - S FIRST MADE FOR AMX_I V_PRODUCTI_VI TY AMX1-A4-A3 MILWAUKEE WI | MADE BY | CI NDY DREW CZ | 25 -FEB-91 | ISSUED | DATE PRINTS TO 4 0 4

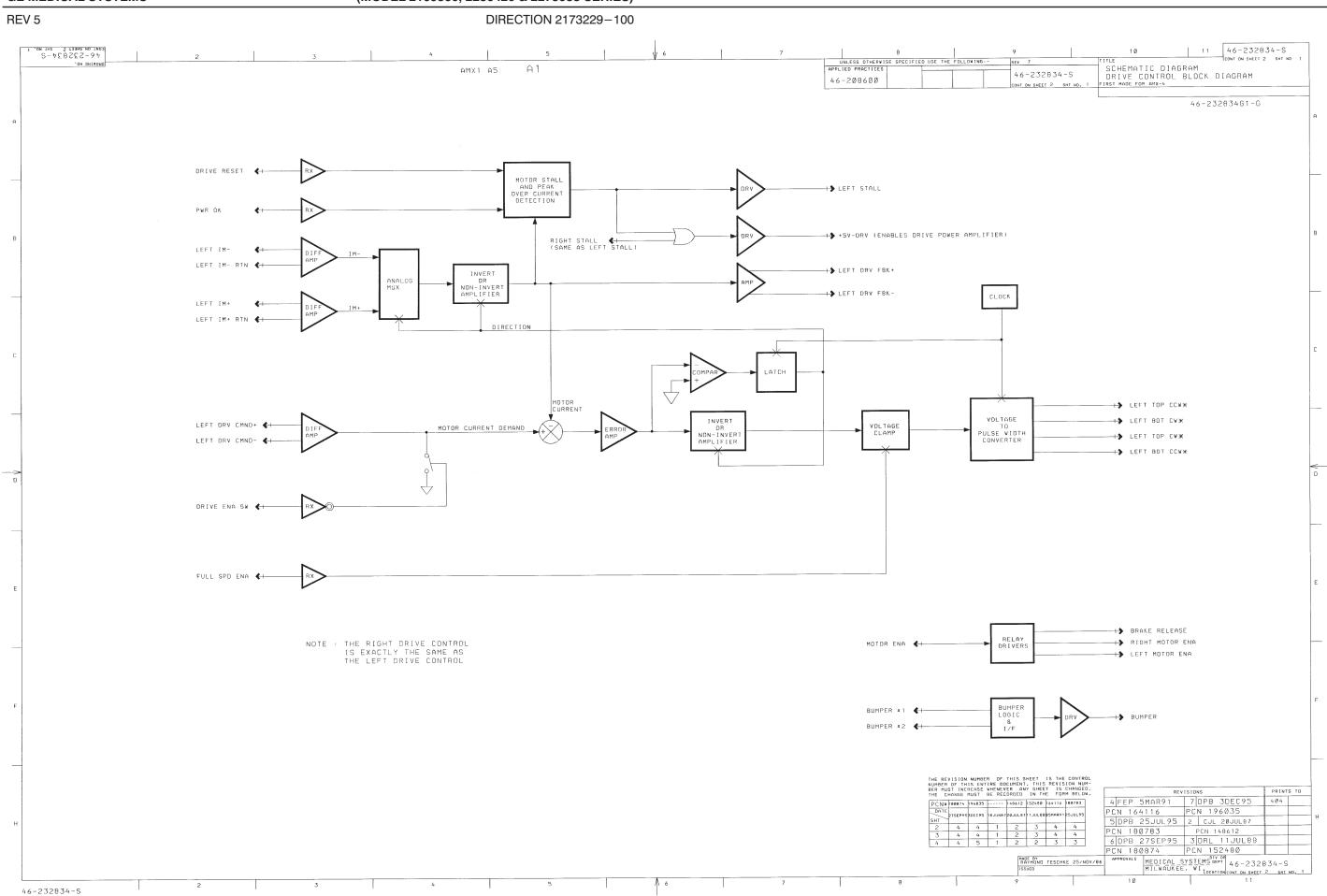
DIRECTION 2173229-100

SECTION 11 DRIVE CONTROLLER AMX1 A5 A1 46-232834G1

REV 5



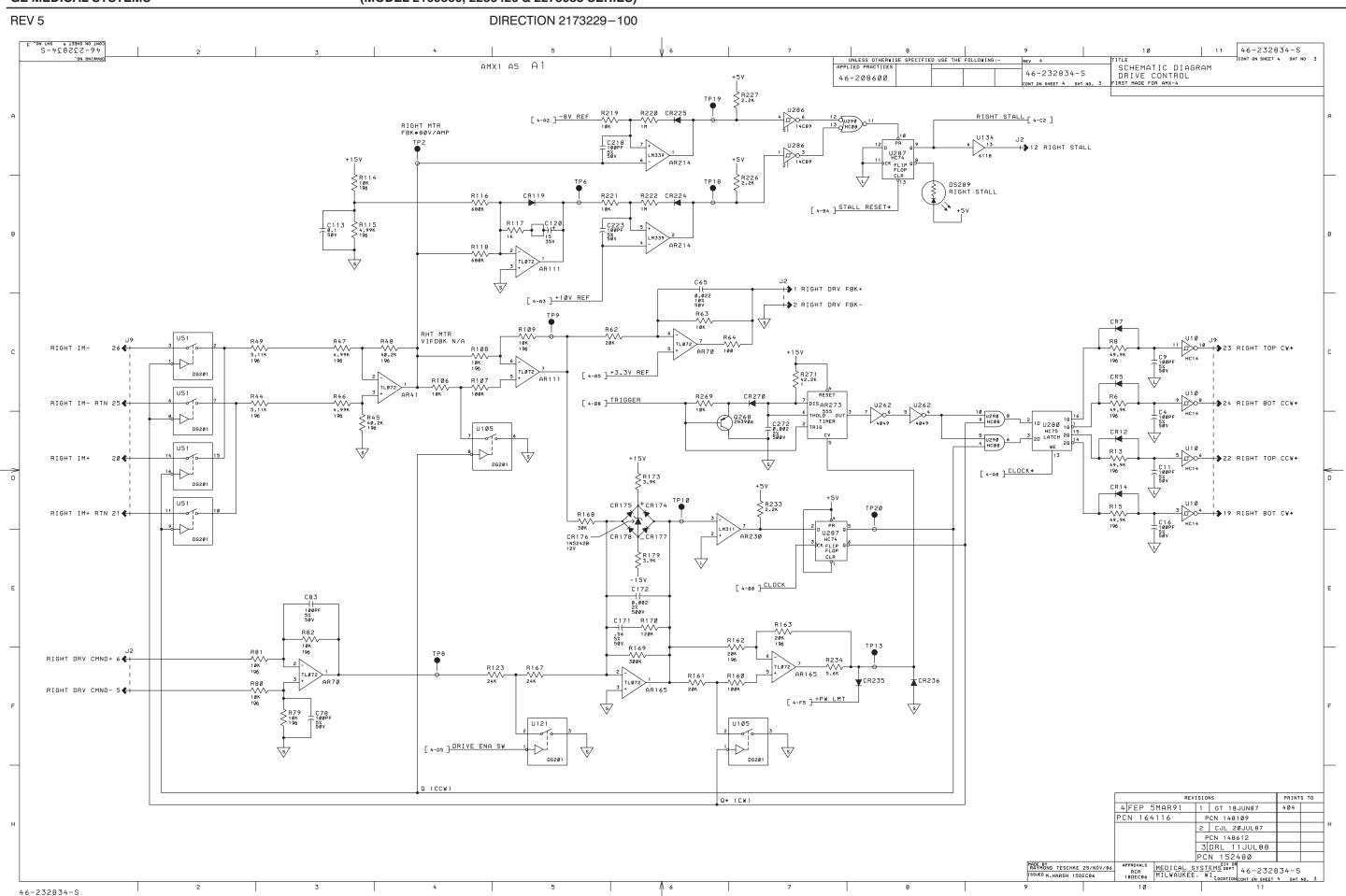
REV 5



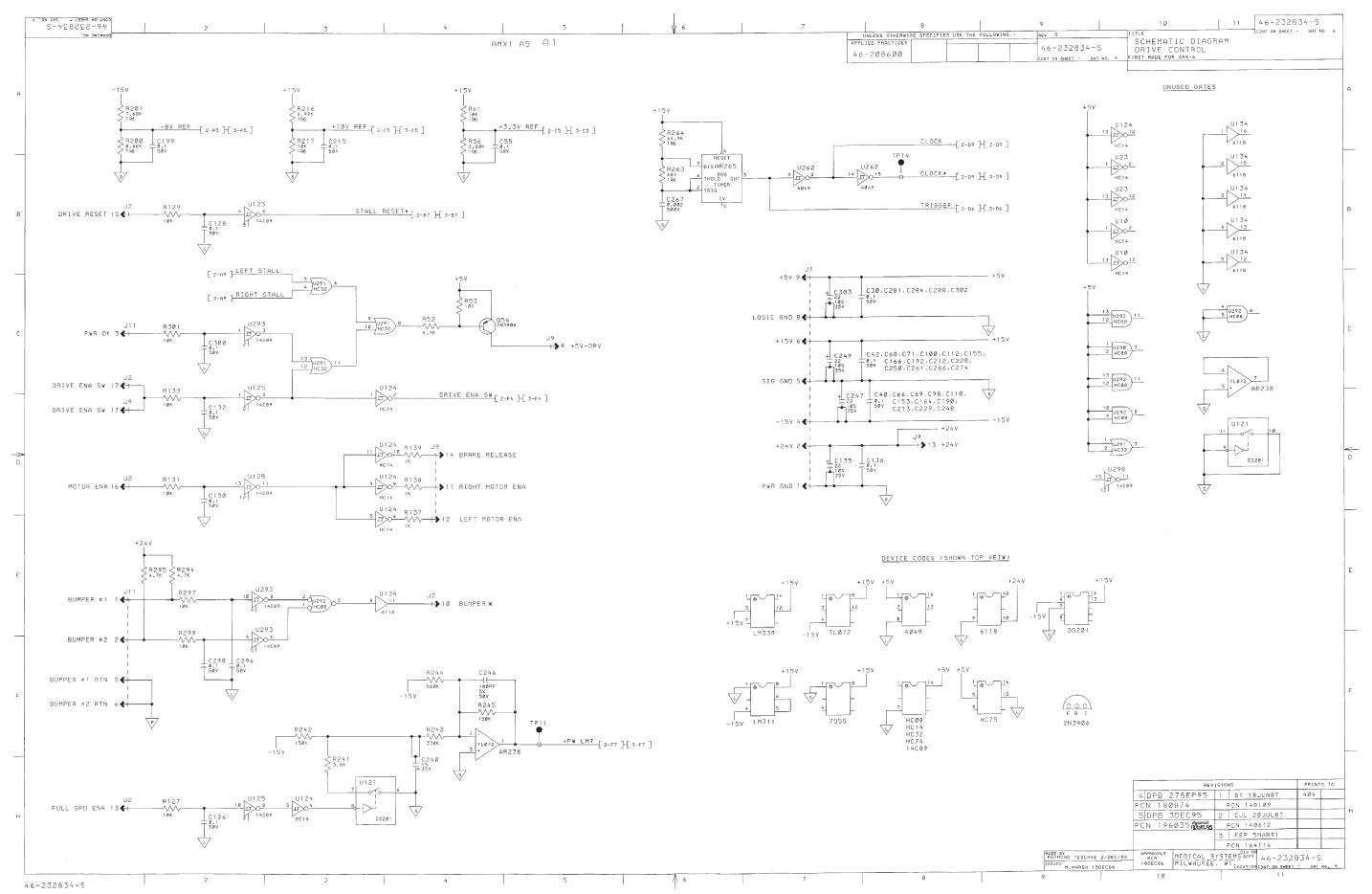
REV 5 DIRECTION 2173229-100 CONT ON SHEET 2 SHT NO. 11 46-232834-S SCHEMATIC DIAGRAM
DRIVE CONTROL
FIRST MADE FOR AMX-4 AMX1 A5 A1 46-232834-S 46-208600 CONT ON SHEET 3 SHT NO. 2 [4-A2] -8V REF R203 R2Ø4 CR2Ø9 LEFT STALL [4-B2] LEFT MTR FBK•8ØV/AMP C2Ø2 1ØØPF 5% 5øv 14 LEFT STALL U283 AR214 DS285 LEFT STALL R2Ø6 CR2Ø8 [4-84] STALL RESET+ C90 C2Ø7 1ØØPF 5% 5øv AR214 AR99 +≯3 LEFT DRV FBK+ [4-A3] +10V REF . +≯4 LEFT DRV FBK-2)/ NR67 100 LEFT IM-[4-A5] +3.3V REF DG2Ø1 ₹R258 [4-B8] TRIGGER 9 1 8 LEFT BOT CW+ LEFT IM- RTN 1 U1Ø5 DG2Ø1 S LEFT IM+ +157 C24 100PF 5% 50V [4-A8]CLOCK+ U31 CR142 + CR141 LEFT IM+ RTN 6 . →3 LEFT BOT CCW+ U283 DG2Ø1 -150 [4-B8] CLOCK Ø.ØØ2 2% 5ØØV C151 R15Ø LEFT DRV CMND+ AR154 5.6K 5 TLØ72 7 AR154 ₩CR197 R74 ---\/\/\ 1ØK 196 LEFT DRV CMND- 8 [4-F5] +PW LMT 1.UNLESS OTHERWISE SPECIFIED: ALL RESISTORS ARE 0.25W, 5% AND ARE IN OHMS U121 U1Ø5 ALL CAPACITORS ARE IN MFD 4-D5 DRIVE ENA SW ALL INVERTERS ARE 7404 DG2Ø1 DG2Ø1 ALL DIODES ARE 1N4148 2. * INDICATES AN ACTIVE LOW. Q (CCW) REVISIONS PRINTS TO Q+ (CW) 4 FEP 5MAR91 1 GT 18JUN87 404 PCN 164116 PCN 1481Ø9 2 CJL 2ØJUL87 PCN 148612 3 DRL 11JUL88 PCN 152480 RAYMOND TESCHKE 25/NOV/86
ISSUED M.HARSH 15DEC86 APPROVALS
RCR
18DEC86

MEDICAL SYSTEMS DEPT
46-232834-S
LOCATION CONT ON SHEET 3 SHT NO. 2

46-232834-S

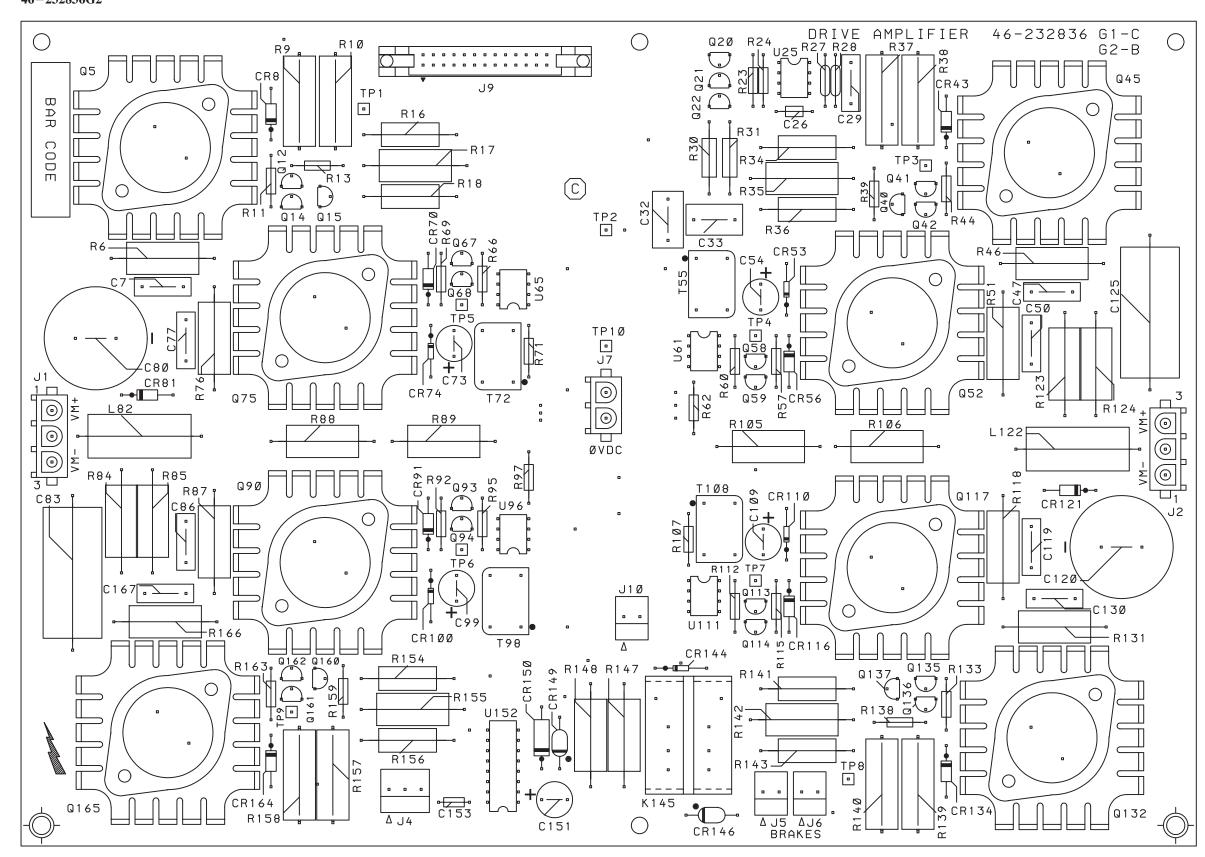






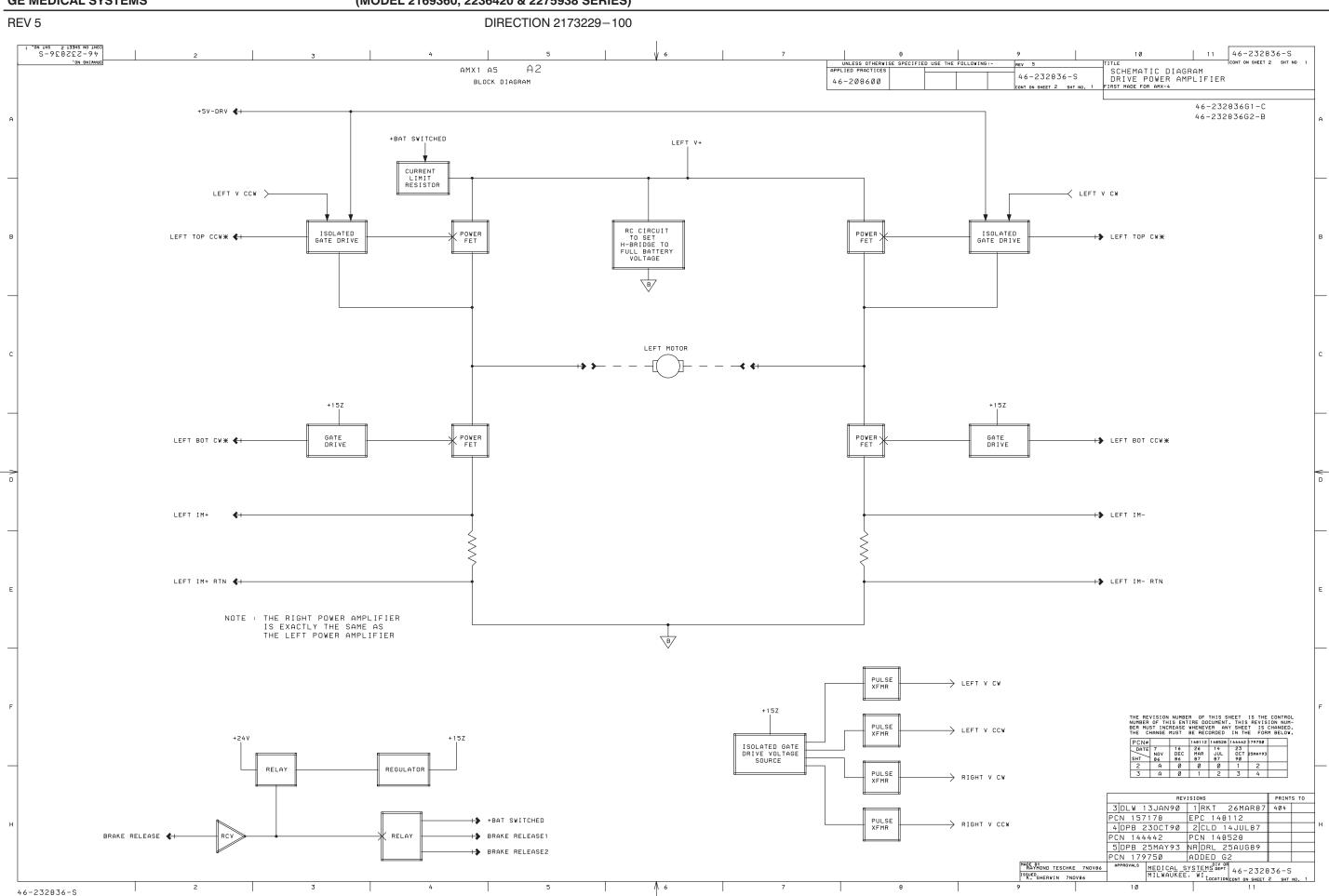
DIRECTION 2173229-100

SECTION 12 DRIVE POWER AMPLIFIER AMX1 A5 A2 46-232836G2



DIRECTION 2173229-100

12-3

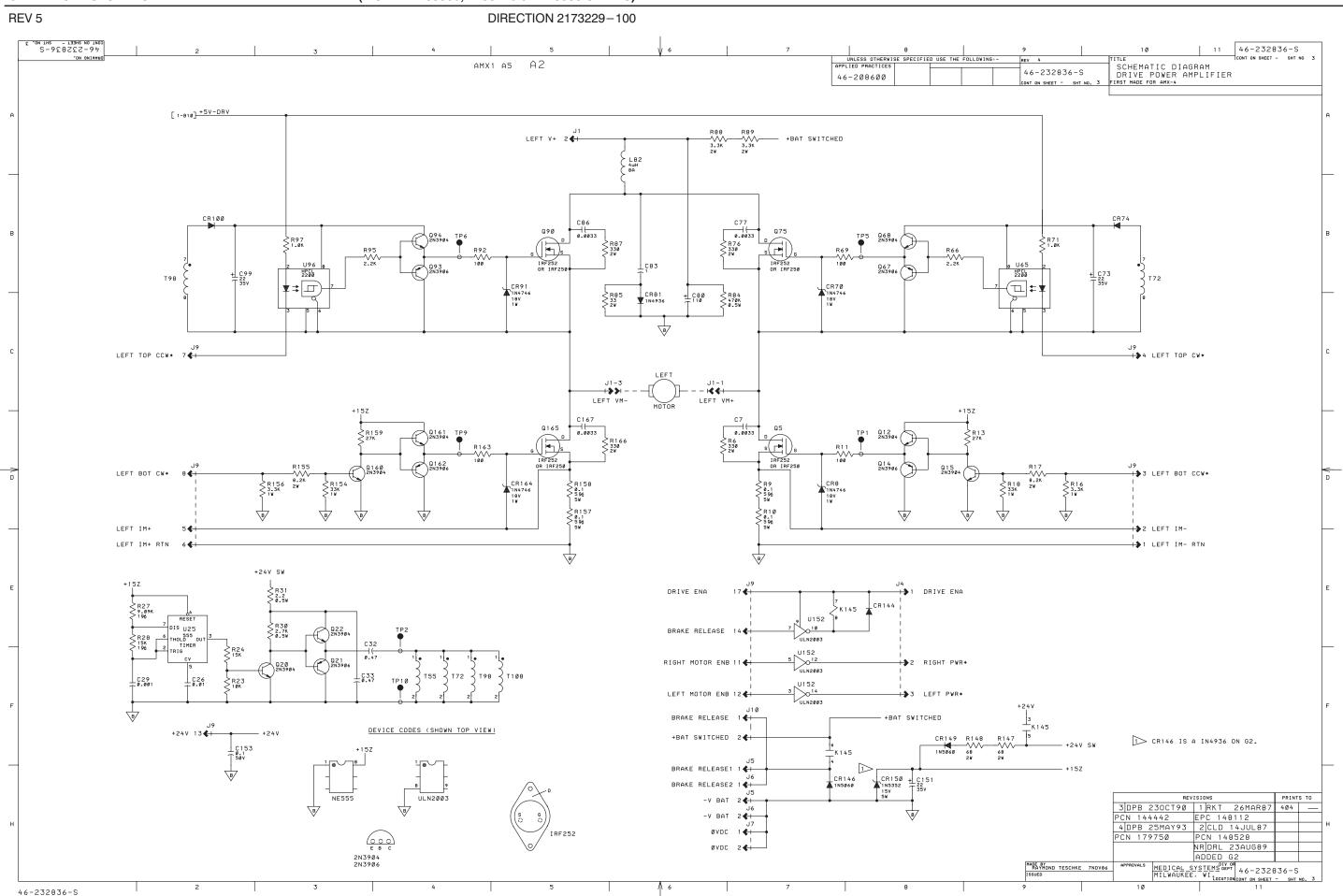


REV 5 DIRECTION 2173229-100 CONT ON SHEET 3 SHT NO. 11 46-232836-S A2 TITLE

SEMEMATIC DIAGRAM

DRIVE POWER AMPLIFIER
FIRST MADE FOR AMX-4 AMX1 A5 46-232836-S 46-208600 CONT ON SHEET 3 SHT NO. 2 +5V-DRV [2-B2] +5V-DRV 9**∢**1 RIGHT V+ 2 - +BAT SWITCHED C5Ø 0.0033 R51 330 2W 0.0033 ₹R62 ⊥¢125 U61 HPCL 2200 HPCL 2200 T1Ø8 > CR56 1N4746 18V 1W CR116 1N4746 18V 1W ₹8123 ₹33 2₩ + C120 RIGHT TOP CCW+ 22 →23 RIGHT TOP CW+ J2-3 - - **I≮≮**+ RIGHT VM+ RIGHT VM-C47 Ø.0033 R46 330 2W R142 R143 3.3K 2W RIGHT BOT CW+ 19€ +≯24 RIGHT BOT CCW+ CR43 1N4746 18V 1W CR134 1N4746 18V 1W R38 Ø.1 596 5W R37 Ø.1 5 96 5 W RIGHT IM+ 20 € . +≯26 RIGHT IM-RIGHT IM+ RTN 21 . →25 RIGHT IM- RTN B NOTES: 1.UNLESS OTHERWISE SPECIFIED: ALL RESISTORS ARE 0.25W, 5% AND ARE IN OHMS ALL CAPACITORS ARE IN MFD ALL INVERTERS ARE 7404 ALL DIODES ARE 1N4148 2. # INDICATES AN ACTIVE LOW. PRINTS TO REVISIONS 1 DPB 230CT90 404 PCN 144442 2 DPB 25MAY93 PCN 17975Ø MEDICAL SYSTEM DEPT 46-232836-S
MILWAUKEE WI LOCATION CONT ON SHEET 3 SHT NO. 2 1 Ø 46-232836-S

12-5



REV 5

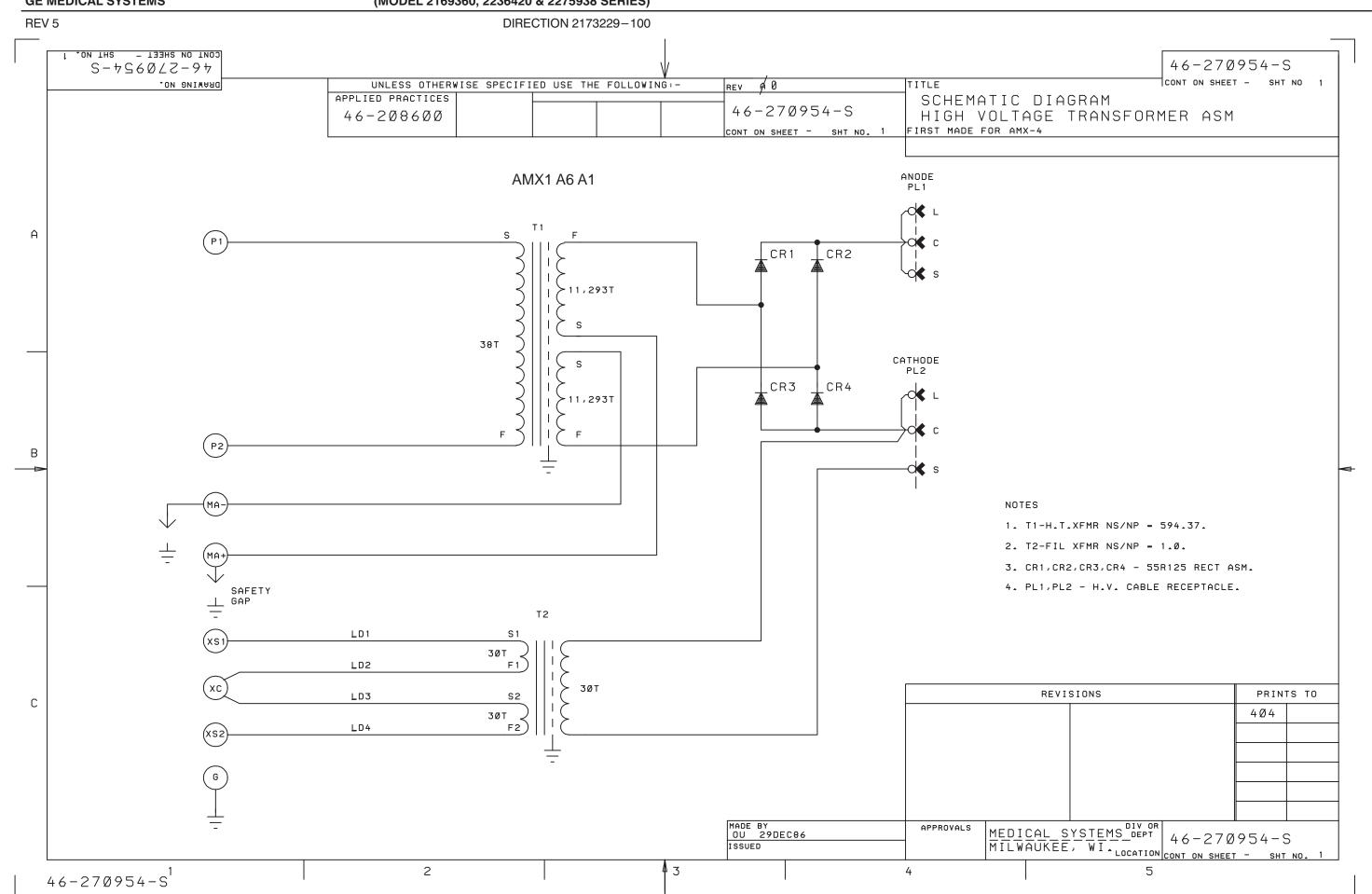
DIRECTION 2173229-100

SECTION 13 HIGH VOLTAGE TRANSFORMER AMX1 A6 A1 46-270954G1

NO BOARD DRAWING

REV 5

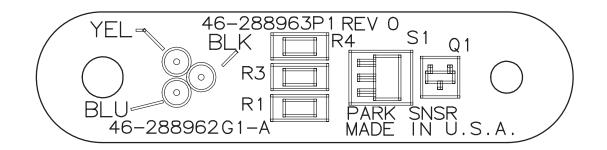
13-3



DIRECTION 2173229-100

DIRECTION 2173229-100

SECTION 14 HALL EFFECT TUBE PARKED SENSOR AMX1 A2 S1 46–288962G1



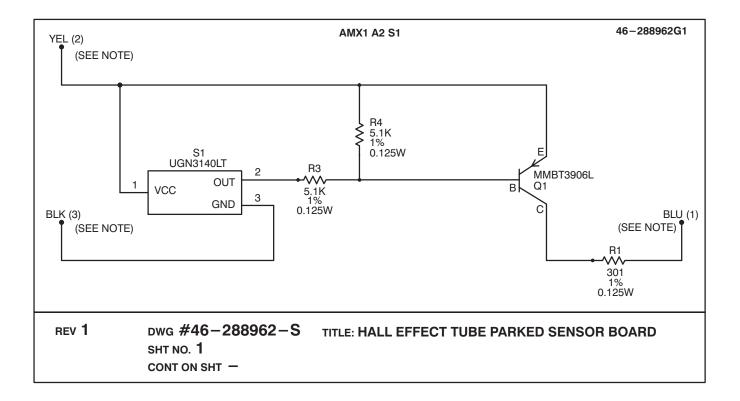
7 5 DIRECTION 2173229-100

REV 5 DIRECTION 2173229-100

HALL EFFECT TUBE PARKED SENSOR BOARD

AMX1 A2 S1

46-288962-S



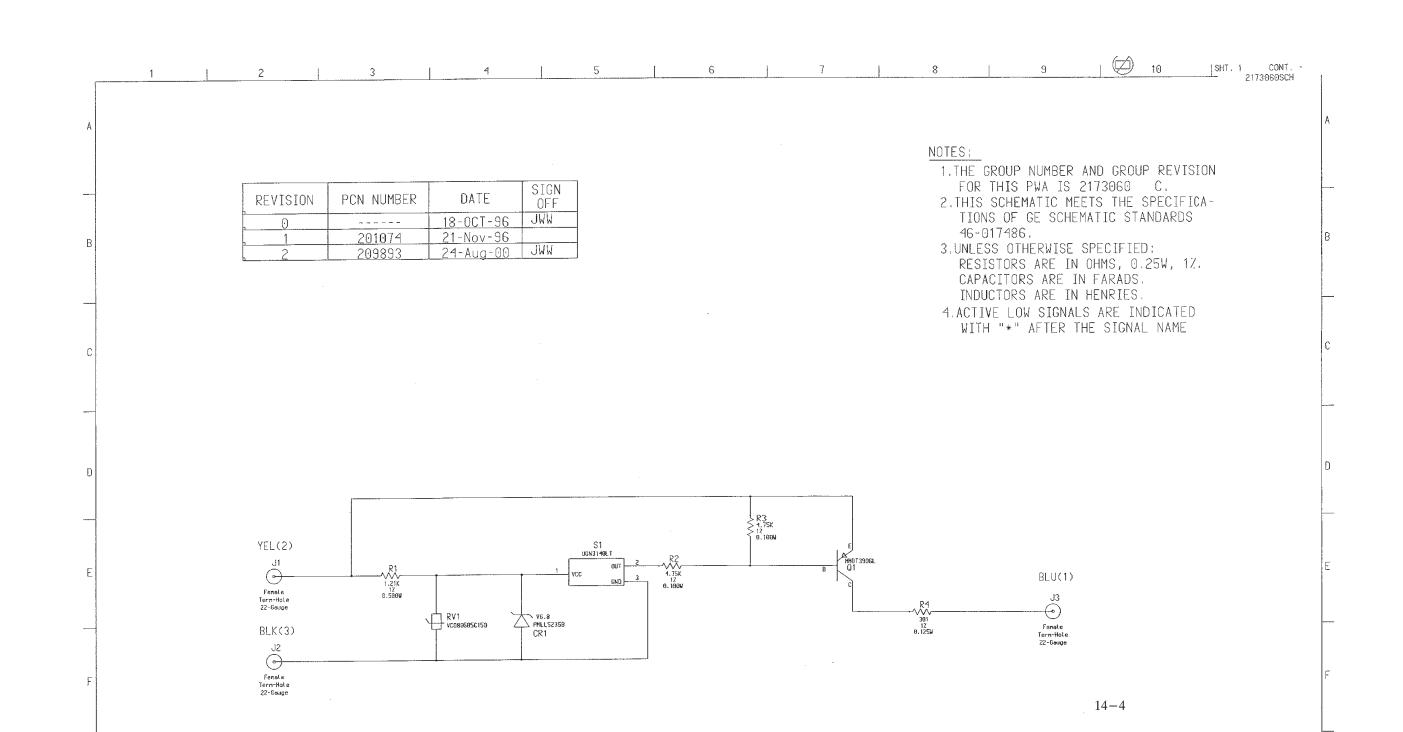
Note:

Refer to the AMX-4 Overall Wiring Schematic 2115090SCH (Section 2) for the following:

- Blue lead (1) connects to AMX1 A2 TS2-1 (Sheet 8, Zone F6)
- Yellow lead (2) connects to AMX1 A2 TS2-2 (Sheet 8, Zone F6)
- Black lead (3) connects to AMX1 A2 TS2-3 (Sheet 2, Zone D7)

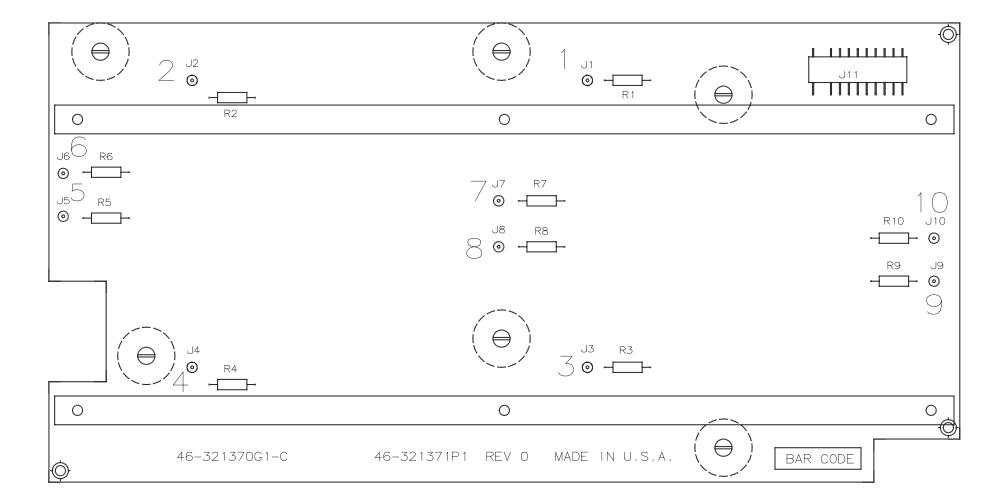
REV 5

HALL EFFECT TUBE PARKED SENSOR BOARD 2173060 AMX1 A2 S1 2173060SCH



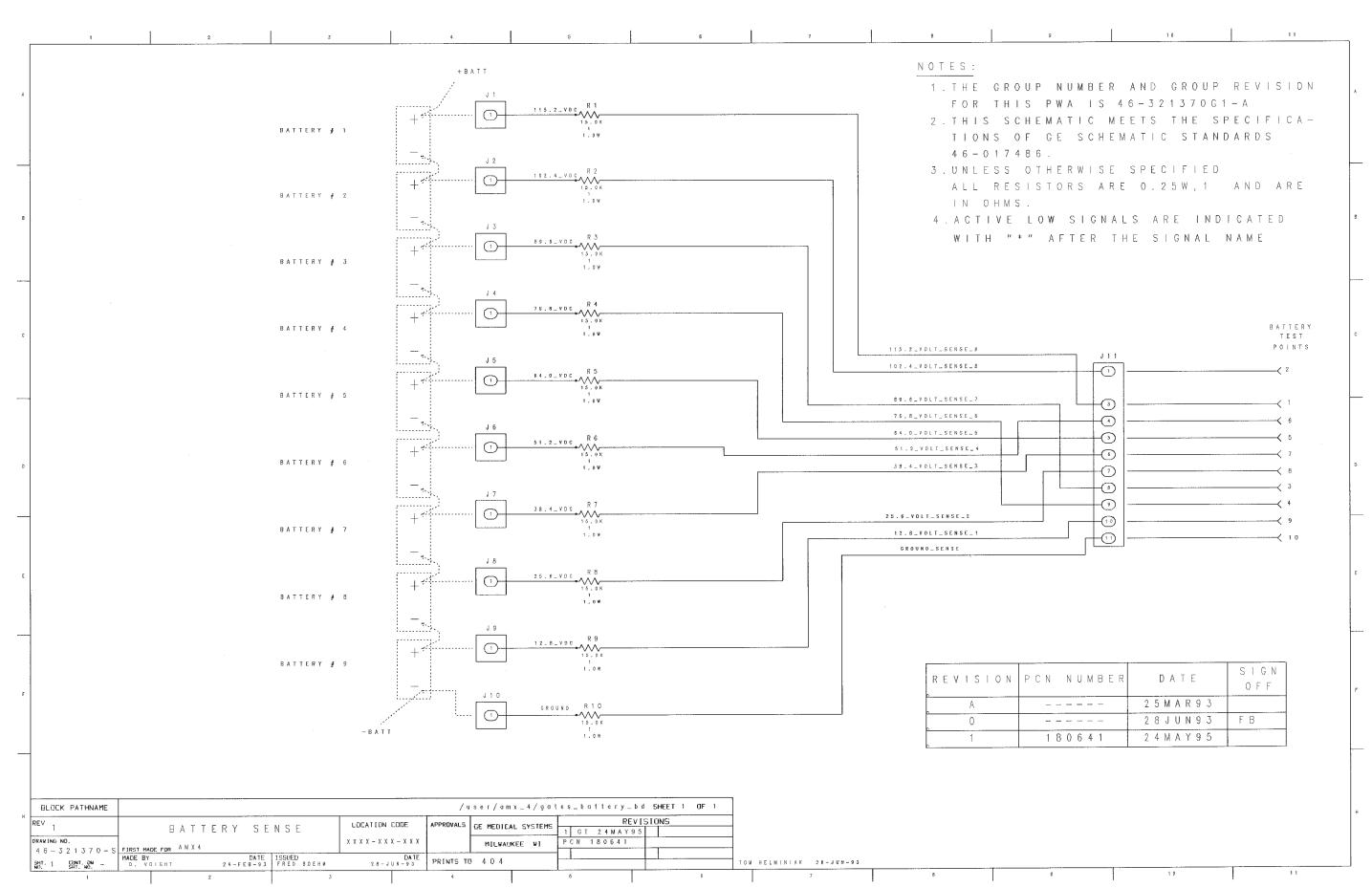
DIRECTION 2173229-100

SECTION 15 AMX2 A3 A1 BATTERY SENSE CIRCUIT 46-321370G1



REV 5

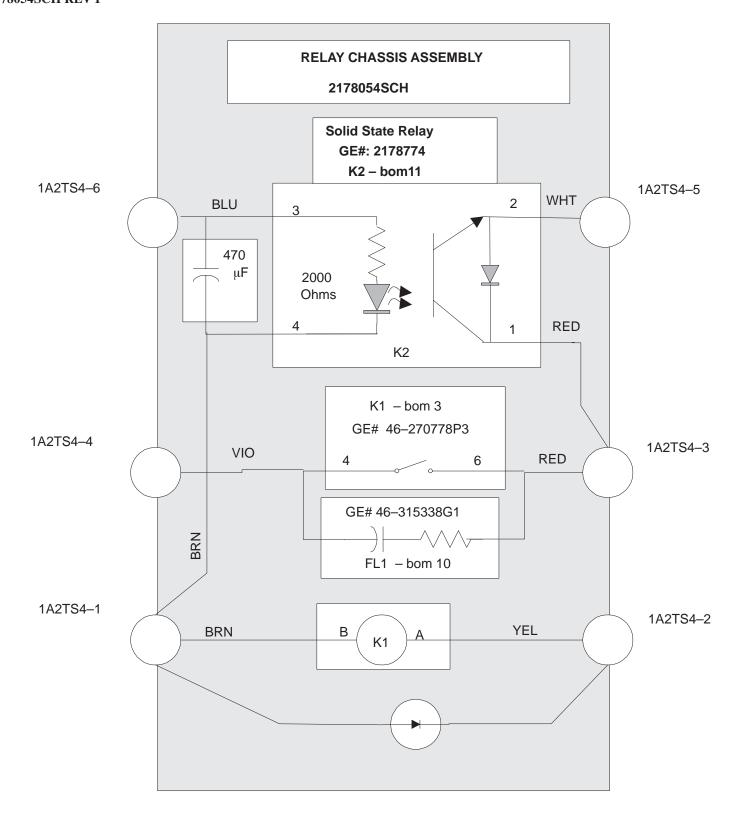
REV 5 DIRECTION 2173229-100



REV 5

DIRECTION 2173229-100

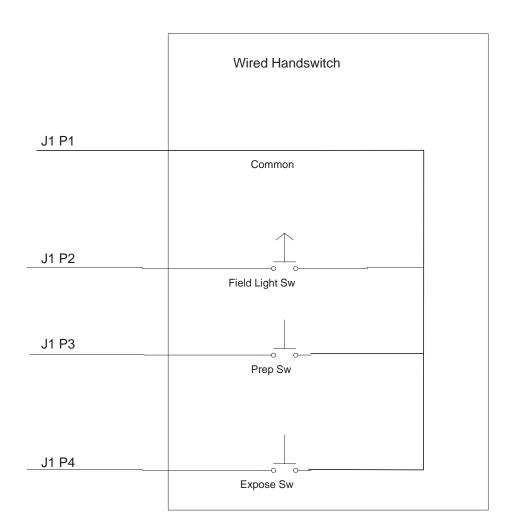
SECTION 16 RELAY CHASSIS ASSEMBLY 2178054 AMX1 A2 R1 2178054SCH REV 1



DIRECTION 2173229-100

REV 5 DIRECTION 2173229-100

SECTION 17 HANDSWITCH AMX1 2





DIRECTION 2173229-100



GE Medical Systems — Europe: Telex 698626 283, rue de la Miniére, B.P. 34, 78533 Buc Cedex

France